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ALBANY MEDICAL ANNALS

*Journal of the Alumni Association of the
Albany Medical College*



Blatz

Ἀσφαλὲς καὶ ἔμπεδον ἔστω τὸ σὸν ἔδος.
Ἐκ σκοτοῦ μὲν ἔξαγε φῶς, ἐκ
δὲ πάθους ἀναψυχὴν.

COLLEGE OF PHYSICIANS
OF PHILADELPHIA

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ALBANY MEDICAL ANNALS

WHAT THE STATE EXPECTS OF THE INDUS- TRIAL PHYSICIAN

*Read at the Meeting of the New York State Society of Industrial Physicians
and Surgeons held at Syracuse, December 7, 1921*

By HON. HENRY D. SAYER

Industrial Commissioner, State of New York

As Dr. Hourigan has expressed it to you, I would not have avoided attending this meeting if I had had to walk, because it is a very great pleasure and a privilege to be present and extend the greetings of the State Department of Labor to a body of men who play so important a part in the administration of the labor and compensation laws of the State.

The industrial doctor is a part of the administrative machinery of the labor and compensation laws. You may not have taken and subscribed the constitutional oath of office, and filed it with the Secretary of State, and you may not be on the State's payroll (and you may be fortunate in that), but you are an important and an intelligent part of the administrative machinery of the State, and so I bring to you the greetings of a co-worker in that field and an expression of the appreciation that we feel toward the men who are laboring in the field of industrial medicine and are doing such great work.

In view of the fact that you are part of the machinery of the State in administering the law, I think that I do not exceed the truth when I say that the State does expect certain things of the industrial doctor, certain things beyond what is expected of the average, ordinary citizen of the

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State. It may be presumptuous for me to undertake to tell you gentlemen anything about what the State expects of you. As a layman, I approach that subject with something of trepidation, but it seems to me (of course it is a truism) that the State expects the elemental, cardinal virtues certainly in an industrial physician—the virtues of truthfulness, of honesty, of fair dealing, and constructiveness.

You gentlemen, before the State conferred upon you a diploma, in recognition of your education and your special training in your given field, required that you submit the proof and it is satisfied that you have submitted proof that you possess those elemental virtues and that you subscribe to high ethical standards—the standards of the medical profession, which are second to none.

Beyond those elemental virtues, the State expects and I think has a right to expect of the industrial physician, that he shall be progressive. We view the accomplishments in industry, in the last two decades, with great pride, but that pride should be merely a stimulus to further progress in industry, and the industrial physician is responsible for that stimulus.

Therefore, it behooves you to read, to follow closely, the advancement, not only in medical science, but in other aspects of industrial medicine, that you be responsive to every progressive thought and high ideal. I think I may say that this meeting, I may say that this association, is evidence of the fact that the industrial physicians in the State of New York are progressive, because by meetings such as this, by your papers, by your mutual exchange of ideas and experiences, you do learn, you do profit by counsel and advice of one another; and if my being here to speak to you, in my plain and halting way, can be of any benefit or if it can add anything to the stimulus toward progressive thought and action on the part of the industrial physicians, I shall be more than repaid and very happy to have had the opportunity to be present here.

The industrial physician has a somewhat unique field of opportunity. You can do much for your plant, but you cannot do all that you should do, unless you know your indus-

try. You can know and should know the peculiar hazards, the lurking dangers that are inherent in your industry, or the particular industrial processes with which you have to deal. They may be lurking in the unguarded machine, or they may be found in the noxious gases and fumes, or they may be in the occupational diseases which flow from certain processes and you cannot do your job by merely taking care of those conditions, when you find them, but you should study and know your industry and not merely serve it as a physician, because upon your experience, upon your trained observation, great good may result to the State and to the particular industry with which you happen to be associated.

Knowing your industry employs the keeping of careful records. You have to be a little bit of a statistician. It is your job to know what is the prevailing disability or accident in your industry. The same accident repeated, is some evidence that that accident was preventable. If it was preventable, what have you done toward preventing it? You have not merely discharged your responsibility when you have taken care of the result of that accident. You may say that infringes upon the work of the safety engineer. Well, it does, but I want to say that the work of the safety engineer and of the industrial physician infringe upon one another. They should be made to co-operate. Neither one should stand out and say that it is the other's job. We ought to work together and if I were running a plant, and I were unable to have both safety engineer and industrial physician, and had to choose between the two, I would take the industrial physician and make a safety engineer out of him.

We have heard of course, a great deal (and I dare say it is cocky to talk about it) about the prevention of infections. There was an early conception that the industrial physician's job was to prevent infections. Well, we know that infections happen in spite of the best industrial or other physicians, but we do know that they can be minimized.

The industrial physician should not merely handle his case, in his hospital, he should have an effective follow-up. I was visiting an industrial hospital, not long ago, where a girl came in with a very badly infected finger, it will probably

result in total loss. She had received a very slight injury, had it dressed by the industrial physician, a card was made out, record was kept but she went home and word came to the factory the next day that she had a cold and remained at home for several days with a cold. Her finger became badly infected and she ascribed the pain to the cold. They had no follow-up and I dare say, if after the second day, when that girl didn't show back, they had sent after her and found out, they would have saved a good part of that finger; so that is what I mean by follow-up. It is your job to see that that work is done in your plant, and if you have not facilities to do it, it is your job to stand up before the boss until you get it

You also have certain responsibilities, I should say, in the nature of social welfare. I don't like that term because it has been much used and abused, but in the good plant, with a good plant hospital, you are bound to have many cases where people come to you for advice. Now the man or the woman with worry on the mind is a liability in industry. Worry perhaps because of certain conditions at home, or worry perhaps because of fear of some hidden ailment and if you can remove the cause of that worry, that is your duty. Of course, it is your duty as professional men, that is one of the things that you subscribe to, but don't (and I know none of you do) take the attitude that this is none of your concern. In visiting industrial hospitals in plants through the State, I have found in every instance that the greatest care is taken to help relieve the social condition of the workers, where a real condition exists and an opportunity for service is presented. That, I think, is also one thing that the State expects of the industrial physician.

The State expects that the industrial physician will get men back into industry as soon as they properly can be returned to industry; if not at their old job, at least at some job which they can do; and as a corollary to that, I might say that the State expects of the industrial physician that he will not turn any man back to industry before he properly can be returned.

Cash payment institution for idleness is a dangerous

thing. It is uneconomical. It is just as uneconomical to turn a man back who is not fit to go back and perhaps to have a worse condition following after; and thereby you do not do industry a service.

I would say that the industrial physician has something more than the medical treatment of his people; I would say that he should have before him the question of relieving the man's distress and aiding him to obtain the benefits that the law permits. If you find a man in your plant isn't receiving the compensation with regularity, or if he is not receiving it at all, and he doesn't know why, I would say that it was your job to find out why. If you have a compensation man, it is your job to go down and read the riot act and see that he gets his money. If you are insured in a private company, or the State fund, it is your job to get after your insurance carrier and find out why it is not paid. If proof is needed to support an honest claim, it is part of your work to see that that proof is supplied. Remember that you are after all, the father confessor of the injured workman who comes to you. You are his friend; he trusts you; he has confidence in you. That confidence the State expects will not be abused.

There are many phases of the medical question in compensation that we have been learning a good deal about of late. Dr. Hourigan touched upon the fact that recently we have had a committee working to study the medical question in compensation administration. I felt, and those with whom I consulted felt, that that committee could not properly function or adequately survey the problems unless it had on the committee the viewpoint of the industrial physician, and I think the committee made wise selection (I know they made wise selection) because it has already been demonstrated in asking the President of your Association to serve on that committee; and he has served and he has given the committee the benefit of his great experience and broad vision and his fine spirit and he has served at a good deal of cost to his convenience and his comfort. It is hard work and I want you to know that I appreciate the attitude and the work of your President on that committee.

I don't want to anticipate and I am not going to undertake to anticipate any of the findings of that committee. At the present time, the committee is in the stage of holding hearings. We are attending the Disarmament Conferences now, a little later the battle will begin, when we try to compose all these different elements and get a unanimous report on the medical questions. I know that Dr. Hourigan can aid us very greatly, but we have received support and information and suggestion from members of this Association, but not from all of them. We need all of the advice and all of the suggestions and all of the knowledge born of experience that we can get on this medical problem, so that New York State may be placed in absolutely the front rank of all the states having compensation laws, insofar as her medical treatment is concerned, and I bespeak for the committee, in the hope that we may receive from your Association, as well as from all other physicians dealing with the question, the benefit of their advice and their suggestions and their experience, but more than that, I want to say (and the hour is getting late and I don't want to take too much of your time) that as the administrator of the Department of Labor, I need the benefit and the help of the physicians in industry in this State.

When you have questions arising that you don't quite understand, and things happen that you wonder how they happened, and that you think ought not to happen, don't cuss the courts out at a distance, but tell a fellow about the trouble; let us know about it; we want to know; we want to co-operate, if you will tell us about what goes wrong, instead of telling the fellow on the outside, perhaps we can correct it; and if you don't understand about something, you don't know the reason, can't quite fathom the reason why certain things are done in certain ways, ask us and we will try and tell you and if we can't, it is because there is not a good reason for it and then it ought to be corrected.

And so, I should like the members of this Association to feel that between them and the Department of Labor and its administrative head, there is a close bond of union in a common cause, that we are all striving to administer the

safety laws and the compensation laws in a reasonable and adequate and simple manner and you owe an obligation to the State to aid the State, and the responsible officers of the State, I feel, owe and appreciate that they have a responsibility toward those for whose benefit the department was created. We want to discharge that duty, so I merely ask you that you help us and by so doing, you give us the opportunity in greater measure than ever before, the opportunity to help you. I merely want to bring from the Department that word of greeting and appreciation of the fine spirit and progressive thought that surrounds this gathering and to ask for your mutual forbearance and co-operation and if we do, I am very sure that industry will go forward; that the progress of the last few years will not be stopped. It can't be stopped; it has got to go on. It will go on more smoothly along better directed lines and the lot of the workingman in industry will be immeasurably bettered by such co-operation.

THE SCOPE OF INDUSTRIAL MEDICINE

Read at the Meeting of the New York State Society of Industrial Physicians and Surgeons held at Syracuse, December 7, 1921

By D. GLEN SMITH, M. D.

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Schenectady, N. Y.

It is now the universal practice among the industries of the world to employ the services of the medical profession in some more or less ill defined measure, and the activities of the medical men in industry are loosely grouped together and included under the name "Industrial Medicine." That this term is very poorly defined and capable of extensive elasticity is appreciated when one takes cognizance of the various degrees of medical activities that the several industries deem necessary to develop in order to meet their individual needs. As a matter of fact no one industry is so vastly different from another and no type of medical service is so much more adapted to one situation than to another that this enormous range of medical supervision should be enter-

tained and encouraged except in rare instances. This range of activity varies with different industries all the way from the most extravagant philanthropy in some to the most meager means of covering the law in others; and although both extremes are morally and economically wrong there is a practical mean which should constitute the effort of all industries if they would seek to secure efficiency and production by the husbandry of man power. It is, therefore, the function of this paper to outline what the writer believes to be the "Scope of Industrial Medicine," and to set up certain definite lines of demarkation between it and various other medical activities; such as general medicine, public health, philanthropy, health insurance, etc., with which it often appears to be confused or overlapped when it should be made to occupy a position of harmonious co-operation with all medical and health programs and legislation. Furthermore, it is the effort of this paper to offer an outline of well defined activities that constitute the services of medicine to industries in the attempt to encourage a uniform standard of practice, for without a basic unity of effort little progress out of the pioneer stage can be expected.

Industrial Medicine had its origin approximately one half century ago in some of our mining districts of the West and Southwest, where, because of the more or less complete isolation of these mining industries from the more civilized communities, there was at the disposal of the miners little or no medical attention to cover accidents or illnesses occurring in the mines, and the difficulty in securing adequate care for employees led the mining interests to induce doctors by salaries to interest themselves in so-called "Contract Medicine." Thereby they provided the much needed relief for the sick and injured. At that time the only force encouraging such a step was the sense of moral obligation that the mining companies felt towards employees injured in their service and possibly the idea on the part of a few farsighted leaders that the efficiency and productivity of any given employee increased directly in proportion to his freedom from physical discomfort, pain and illness. Gradually and from this seed there grew the practice of all isolated indus-

tries maintaining the services of doctors on some form of contract. This practice, made necessary by the isolation of some industries, began to be regarded as a valuable economic measure by other less isolated ones and thus there slowly crept into industrial life in general and over a period of several years the fact that some form of medical service is indispensable, some industries maintaining a doctor on contract even in communities well supplied with representatives of the medical profession and many and in fact most of them preferring to retain one man outside their gates from whom it was expected to obtain all the medical service necessary to cover the bare demand—no thought being given to the more comprehensive and economic value of adequate medical supervision conducted on the plant grounds. Eventually two strong factors came to pass which crystallized out of the chaos of the past a more clear-cut definition of Industrial Medicine and those two factors were the Workmen's Compensation Law and the World War. The Workmen's Compensation Law transformed the previous variable moral obligation of a corporation to its employees into a legal responsibility. This new legislation promptly precipitated three protective economic measures on the part of industry:

First, the provision of expert care for the injured for whom the industry, now legally and financially responsible, sought the speediest recovery and minimum disability.

Second, the development of protective measures through the application of safety devices in all hazardous occupations and the promotion of extensive "Safety First" propaganda and programs.

Third, the provision for physical examination of employees for the purpose of excluding those applicants who, by disease or disability, would be potential accident risks to themselves, to fellow workmen or to property.

The war brought to the attention of the industrial leaders throughout the world, perhaps for the first time, the economy of conserving and developing man power on an equal basis with machines and material. It emphasized the fact that such conservation is best made by means of:

First, selective placement for employees not *a* job for *a*

man but *the* man for *the* job as determined by facts obtained as to his mental and physical fitness at the initial physical examination.

Second, the promotion of the highest standards of sanitary and hygienic surroundings in which the employees work—a measure so long pooh-poohed and thought to be a means of mollycoddling workers, but it is a fact beyond any measure of a doubt that the men feel better, work better, produce better and with better morale in clean surroundings provided with adequate light, ventilation, water supply and toilet facilities.

Third, the provision for the re-examination of employees who, by facts found on pre-employment examination or by disease or injury contracted during service, are in need of such a follow-up control at intervals as would be determined by the nature of the disability.

Fourth, the promotion of preventative measures against industrial disease, i.e., metallic poisoning, silicosis, etc., as well as against epidemics of contagious and infectious disease which so readily cripple production.

Fifth, the education, training and development in the application of the above measures of the sergeants of industrial armies—the foremen, who are the backbone of any given organization and on whose co-operation we must depend.

Having now outlined the changes induced by the Compensation Law and the war it remains to develop still farther the practical possibilities and economic values of the above outline to determine the range of activities and to establish more definite limits to the practice of Industrial Medicine.

It appears to the writer that the practice of Industrial Medicine divides itself into seven chief activities—they are:

1. The pre-employment physical and mental examination.
2. The periodic examination of employees.
3. The activities surrounding the works hospital or dispensary.
4. The prevention of occupational disease, infectious and contagious disease.

5. The sanitary and hygienic supervision of the plant.
6. Educational activities.
7. Research.

These departments can not be arranged in the order of their importance because one is quite as valuable as the other in the execution of a successful economic Industrial Medical Service, so they will be considered in the order in which they are above named.

THE PRE-EMPLOYMENT EXAMINATION

This examination when used as a means of exclusion in a broad sense, i.e., the exclusion of all but sound applicants, is a detriment to an industry rather than an aid, for it seriously limits the number of available employees when the demand for labor is high and even when it is normal, because when one considers the number of defects that mankind is heir to, a high standard of choice based on general physical fitness would rule out approximately fifty per cent of applicants. Furthermore, it denies a large number of men, deficient in various ways the moral right of earning a living for themselves and dependents, casts them out as derelicts, thereby naturally inflaming public opinion, creating a source of agitation among labor interests and makes for harsh criticism, general discontent and poverty in any given community. If, on the other hand, this pre-employment examination is used as a means through which selective placement of employees is attained together with its general instructive, health-educational value to the individual applicant and for the purpose of obtaining records for protection against future medico-legal claims of accident disability, then is the best interests of the industry served, the percentage of rejections reduced to about two per cent, the demands for labor more readily supplied and there arises no discontent or bitter criticism. As a working formula to operate the pre-employment examination on a selective placement basis I would suggest that the great mass of applicants be divided into three classes.

Class A, those who prove to be mentally and physically fitted for any employment they choose or can obtain. This covers from fifty to sixty per cent of applicants who need no

future attention or control and are not a burden to the medical department until such time as they become afflicted by accident or disease.

Class B, those who prove to be limited physically or mentally by disability or disease and who are obviously not fitted as are those of Class A for any type of employment but who must be placed according to their limitations if the best interests of the industry and the individual are to be served. This tends to promote less dissatisfaction, less transferring, less complaints, less liability to injury with all its attending loss of time, money and production or in other words, tends to the general promotion of efficiency by proper adaptation of the human machine to the work for which it is so variably fitted. This class covers from thirty to forty per cent of applicants and it is from this class that under the ruthless broad rejection system so many otherwise serviceable men are turned away. In order to exercise a proper control over this class of workers it is necessary to make use of repeated follow-up observations on the great majority. This is done to determine if either the individual or his production is suffering as the result of his disability; to keep up a constant spirit of encouragement and education in the effort to stimulate the conservation of his best health, for it goes without saying that production varies directly as the health of the worker; to approve of contemplated transfers of the members of this class to other work; to keep one step ahead of disabilities who unscrupulously guided or of their own volition may entertain schemes to involve the industry in medico-legal responsibility for their own personal gain; and to promote morale. The control of this class is not cumbersome for they are asked to report at various intervals of time for observation, the interval depending upon the type of disability and with the co-operation of able foremen little difficulty is encountered. No attempt should be made by an industry to provide treatment for this class of workers for this rightfully belongs to the duties of the family physician upon whom no industry can afford to transgress. Moreover, it would involve too much expense to be practical, and since the disabilities are not industrial responsibilities and the gain

realized by competent care is a mutual asset to both the employer and employee, repeated encouragement and stimulation to keep these men in touch with medical observation is sufficient service unto the industry. The disposition of these men depends upon facts found on observation as it is easy to deduct from the above. The types of disability covered in this class are:

- Visual defects,
- Advanced dental caries and oral sepsis,
- Toxic goitre,
- Arrested tuberculosis,
- Compensated heart lesions,
- Cardio-vascular hypertensive disease,
- Well developed hernia with well fitted truss,
- Organic and functional nervous disease,
- Abdominal tumors,
- Weak back,
- Chronic arthritis,

and in short, practically all disease conditions which are partial disabilities. The advisability of accepting employees with the loss of one appendage, hand, foot, arm, leg or eye, depends entirely upon the attitude of the Compensation Law of any given state. If it is interpreted that an industry be responsible only for the disability incurred in its service all well and good and the applicant unfortunate in the loss of some member can be accepted with no more hazard than in the acceptance of an able-bodied man. In fact the absent or artificial extremity is just one less possibility for injury. If, however, the law provides for the responsibility of a total disability in partially crippled employees who eventually lose the mate of the missing extremity then no industry can afford to accept such applicants.

Class C, those who prove to be physically or mentally unfit for any employment. This class covers from five to ten per cent of applicants some of which return at a later date as Class A men. The general types of disability covered by this class are:

- Senility,
- Severely impaired vision (practical blindness),

Extreme emaciation,
Decompensated or obviously weak hearts,
Aneurysm,
Advanced neurological conditions,
Open syphilis,
Acute gonorrhea,
Active tuberculosis,
Infectious and contagious diseases,
Potential hernia (dilated rings, impulse and weak walls).

There can be no argument against the rejections of the above named class of cases for they are so obviously poor and hazardous economic risks.

As to the means of defining the above classes, i.e., by the physical examination, a few words may be said in the effort to determine its quality. It obviously can never be a medical examination in the true sense of the word because the attending circumstances make history taking futile, for the reason that the applicant will invariably give any history which will best suit the possibility of getting the work desired; that the contact with foreign tongues makes it very difficult and the time consumed is too great to be of practical value. A complete physical examination, however, can be done and should be in each case conscientiously and carefully executed by an able, observing and tactful examiner provided with the proper space, clerical help and equipment to secure the best results. No time will be given here to enumerate methods, equipment and other such factors, for they can be best determined to the satisfaction of the individual examiner, but given a full time or part time examiner, as the size of the factory and the labor turn-over demand and a clerk to fill the record cards from the examiner's dictation, an average space of ten to twelve minutes should be necessary for each examination. The applicant should be satisfied that he has had an examination and the doctor confident of his findings. This time is, of course, not sufficient for an exhaustive examination but the circumstances demand a combination of time limit, facts, practical execution and dispatch so that the important parts of the examination must be emphasized while the trivial ones are noted in pass-

ing; nor is it practical to conduct routine laboratory examinations on all these cases, but there must be ample provision to secure urine, blood, X-ray and sputum examinations when, in the opinion of the examiner, any of these are indicated. Under these circumstances an examination can be made for every practical purpose. At this point it seems worth while to dwell for a moment on three phases of the pre-employment examination that so often invite criticism. They are: examination of the eye, examination of mentality and examination of the women employees.

Of course, it can not be practical in this examination to measure the eyes under a mydriatic but on the other hand, how ridiculous is it to establish an arbitrary standard of vision, say at 20 40 as determined by Snellen's test, and require all comers to meet that standard or wear, during working hours, lenses which will correct to that standard, no consideration being given to the type of occupation followed by the employee, so that we find shortsighted men, mechanics, working on fine tasks measuring to a thousandth of an inch trying to wear lenses which correct for distant vision. Is it not more reasonable to employ the use of Jaeger's test in addition to Snellen's test for binocular vision; and trace the visual fields, abolish all standards and measure the eye in consideration of the work it must do and abide thereby with no enforced law as to the wearing of lenses correcting to a standard? It is fitting and proper to inform the applicant that he should secure lenses for his visual defect but to accept or reject on the basis of a standard of vision regardless of occupation and to enforce that standard seems at least unreasonable.

As to the examination of the mental status of applicants many industries vary all the way from no examination at all to a rather complicated and time-consuming written series of trick questions. One extreme is as unreasonable as the other and it is difficult to arrive at a satisfactory solution of this problem; but it is surely advisable to know something of the mental makeup of the applicant and yet it is not necessary to catalog the intelligence and educational development, for this is more properly determined through the

questionnaire on employment qualifications, so it would seem that if a fair estimate of mental acuity, responsiveness, reaction time, nervous stability, etc., is obtained it will suffice. This is best obtained by observation of responses and reactions to the usual questions and requests during the examination so that a keen observer can very quickly and accurately measure his man. I do not believe any further or more complicated tests are necessary.

In addition, difficulties are encountered in industries employing large numbers of women as to the advisability of maintaining a woman physician and as to the extent and technique of the physical examination of female applicants. In general, I should say that if the circumstances are sufficiently urgent the services of a woman physician assistant to the medical director of a company is highly appreciated but not absolutely necessary. The decision as to whether a woman physician will be maintained or not depends upon the consideration of a few points, such as the personal equation in the woman chosen, the peculiar attitude of the feminine sex towards physicians of their own sex and the general character of a mass of employees. By the personal equation of the woman physician I mean those qualities of personality which are necessary in establishing confidence and co-operation among female employees and this, although it sounds easy, is one of the most difficult problems to solve, for apparently it is very unusual to obtain the type of woman with whom the female employee harmonizes and it is disastrous to the object of the service to employ a woman, no matter how well trained she may be, if these qualities are lacking. By the peculiar attitude of the feminine sex towards physicians of their own sex I mean the inclination to prefer any routine measures conducted in the presence of an entire female staff but when there are indications of any abnormal or disease conditions present they invariably request the services of the male physician. I believe this attitude is a common characteristic the world over, and must be taken into consideration when the services of a woman physician are determined, for I believe it should be understood by the employees that they may have access

to the services of the man in charge of the department at any time they so desire. As a matter of fact, the right type of man surrounded by a proper staff of female nurses, conducting an examination in a considerate way, is quite as satisfactory to the sensibilities of most women and, as mentioned above, is preferred under certain circumstances. As regards the actual technique of the examination of female applicants considerable omissions, such as pelvic and genital examinations, should be made unless indicated by the general examination, for herniae are so negligible in women that even those few which pass undetected so rarely involve the employer in compensation difficulties that the omission of the examination is justifiable. Venereal disease, unless acute, is so difficult to detect without painstaking bacteriological examination that it is impractical to examine for the same. If the women applicants are examined to a low waistline level, the exposed parts of the body being covered for the sake of decency, and the extremities examined for deformities, varicosities and joint conditions without undue exposure, sufficient data can be obtained for a satisfactory estimate of the individual. As a statistical study and in support of this view the percentage of rejections with complete female physical examinations in one large industry was two per cent and after the more limited examination was adopted the percentage of rejections remained at two per cent, so that it would seem sufficient in the handling of women applicants to conduct a more limited examination than in the male, thereby saving time, criticism and expense for which so little is gained.

At the completion of the pre-employment examination the record card, now complete, is put in its folder and filed in a record room, held confidential for such matters, and the applicant told frankly of his acceptance or rejection and why. There is as a rule too much secrecy about the facts pertaining to the disposition of applicants for they surely have a moral right to know why they are rejected; and if accepted they should be informed of any defect found that they may be encouraged to correct this not only for their personal well-being but also in the interest of their better

service to their employer. In other words, this examination, carefully and conscientiously conducted, is a valuable asset to employer and employee and should be exploited as such.

PERIODIC RE-EXAMINATION OF EMPLOYEES

By this expression is meant not the routine examination of all employees, for obviously this in most instances would be a gigantic task involving a larger medical staff and consuming more time than is warranted by the practical gain therefrom; but every industry has in its personnel men whose value to the industry and even to the nation is indispensable and it is to the conservation and prolongation of the services of these men that the policy of careful periodic examination is directed.

Statistical studies show that the number to be looked after in this way is about 2.5 per cent of the personnel of any industry, so it is really not so formidable a task as it would seem to pick out the irreplaceable men and put them on a routine schedule of re-examination. The reason for this is obvious—most men who have reached this enviable position in the industrial world range between the ages of fifty to sixty years, have devoted their lives to service with little thought of themselves and having reached the age when the degenerative changes in man begin to manifest themselves so frequently, they readily become the victims of the so-called “degenerative diseases” through which their services become impaired and they rapidly decline in value to the industry to which they so faithfully gave every effort to build. The examination of these men reveals the early phases of such degenerative or other chronic disease conditions and gives ample time, warning and opportunity to ward off or delay the progress of such changes and thereby prolongs the life and service of the individual. This examination differs from the pre-employment type in that it must be a complete and exhaustive medical examination—no opportunity being neglected to determine a most accurate estimate of the patient's condition. At the termination of this he should be satisfactorily acquainted with the facts necessary for his guidance in the promotion of his better health and longevity, given every consideration in the way of counsel and

advice but never actively treated for any disease condition. This activity properly belongs to his family physician with whom it is highly desirable that the industrial physician be on the best of co-operative terms and can always be if a considerate attitude of mutual interest is stimulated. Repeated follow-up examinations of these indispensable men should be made at intervals as indicated by the findings on previous examinations to keep a constant check on their physical status. In the execution of this task the industrial physician is delivering one of the most important services of his office.

DISPENSARY ACTIVITIES

What a waste of space, personnel, equipment and money is it for any industry to maintain the so-called Emergency Hospital where accidents and acute illnesses of all descriptions are given only the first emergency treatment and then shipped on to more competent care! Is it not more reasonable and economic to utilize this space, equipment and personnel about which to develop a dispensary service rather than an emergency station, save money by spending it on a little additional equipment and able personnel, so that practically all, save the major medical and surgical work, can be done on the spot?

No time will be given to the discussion of equipment, personnel, etc., except to mention that they should be sufficient and of the best quality to meet every demand if the best results are to be obtained.

As a dispensary the industrial dispensary should function second to none and should be equipped for the proper diagnosis and treatment of:

First, all minor and ambulatory surgical accident cases of company responsibility.

Second, all minor surgical and medical cases of personal responsibility for the purpose of keeping employees at their work throughout the working day until such time as they can conveniently consult their private physician and for the purpose of securing records of facts in protection against these personal conditions which, through unscrupulous agents, occasionally claim company responsibility.

For the diagnosis record, disposition and emergency treatment only of all major surgical accident cases, for obviously no treatment of such cases can be conducted in a dispensary. They must have hospitalization and major surgery, neither of which can ever be practically executed on the plant grounds.

For the diagnosis record, disposition and emergency relief of all major medical cases which should all clear through the dispensary on the way home from the shops in order that some information may be obtained for the foreman's use as to approximately how long his man will be absent and in what repair he may expect him on return so that the foreman may be better guided in the layout of his work.

In addition the dispensary should be the base of all investigation and follow-up activities on the sick, injured and absent employees, for it is the natural channel through which facts pertaining to the above are most readily obtained. It should be conveniently located near the center of the plant and appropriately labeled. In large plants which spread over extensive areas one or two sub-dispensary stations should be established in appropriate places to provide easy and quick service, prevent long journeys, delays and loss of time as well as to take the burden of excessive work off the one main dispensary where crowding encourages carelessness and loss of employee's time in waiting for dressings, treatments, etc. These sub-stations are much the better scheme of service than the popular but haphazard distribution in the shops of first-aid outfits presumably in charge of some half-trained, first-aid shop clerk or other individual but really freely accessible to any workman; so from some experience and observation I am thoroughly convinced that this practice is not only unwise but hazardous for the following reasons:

First, the use of chemicals or medicines without adequate knowledge of the pathology of injuries or disease not infrequently leads to complications that may involve an industry in legal procedure. For example: how many cases of cramps dependent on an acute appendix are given a dose of castor oil from the first-aid jar by a first-aid man and how serious are the complications produced!

Second, amateur treatments can not be directed to the speediest possible recovery which is, of course, one object in industrial work, but they frequently result in infection because of the circumstances under which wounds are treated, thus converting a simple injury into a serious and lost-time case.

Third, amateur, haphazard treatment discourages the reporting of injury and encourages the brewing of many disorganized compensation claims.

Fourth, amateur treatment undermines morale just as adequate service promotes it, for the close personal touch with the workmen through the proper and satisfactory measures of relief of pain and injury is a most powerful factor in contributing to his confidence and loyalty to the industry he serves.

In order to create an appreciated and successful medical service one must never lose sight of the common psychic human trait of measuring service by the price paid for it, so it behooves the men in charge of any service never to give the impression to patients that they are getting something for nothing. The workman knows he is being cared for because the company is responsible by law for his care, because it is desired to have him lose no time through his injury or as little as possible, because the company wants his production and because they do not want him to incur a disability for which he must be compensated. If he does not realize these things they must tactfully be brought to his attention lest he get the impression of receiving something for nothing which at once arouses suspicion and inappreciation, for the average two-fisted man abhors charity, paternalism, uplifting and welfare when he is the object of the same no matter how badly he may be in need. No element of philanthropy should taint the service for when philanthropy begins the business of Industrial Medicine stops.

The dispensary in addition is the work shop in which the physician prepares himself to serve as a valuable, able and unprejudiced witness in all medico-legal actions against the corporation. Nowhere else can the facts surrounding any claim be so accurately determined. It is his duty, among

many others, to be well informed on all cases and particularly well informed in detail on all cases of controversy in the attempt to establish where company responsibility begins and leaves off. Unfortunately the opinions of the courts and commissions seem to be that the doctor employed by any given industry will be prejudiced in his testimony in favor of that industry. They even seem to infer at times that he will perjure himself in favor of the industry and hence are wont to discount his testimony which is the most valuable of all for he invariably knows all the facts in a given case. This is a curious attitude of the law which does not take into consideration the fact that the essence of all medicine must be the truth.

PREVENTATIVE MEDICINE

Ninety per cent of the activities of Industrial Medicine are aimed at prevention, for we have surely reached an age of civilization when the old curative efforts are being replaced by preventative measures. This is not only an industrial economy but it is demanded by the more enlightened public of today. Every industrial medical service should have developed a satisfactory system of guarding employees against occupational, infectious and contagious diseases just as it guards them against accidents. It will not be necessary to go into any discussion as to how this should be done for it is a simple public health activity known to everyone, specialized perhaps in the more technical work of guarding against occupational disease. The usual public health activities of detecting and handling infectious and contagious diseases and epidemics are easily applied in an industry if a routine search is constantly kept up by a trained inspector responsible to the medical department. This activity is not only a valuable asset to the industry but is a highly appreciated service to the community and for that reason should be conducted in all earnest co-operation with the community public health legislation and practice. In addition it is not difficult to incorporate with this work the proper check on the incidents of occupational diseases and their etiology, together with active research in the effort to perfect devices for protection against them.

SANITATION AND HYGIENE

Closely allied with the above activity and in small industries possibly executed by the same inspector under the control of the medical department, is the sanitary supervision of the plant. This service needs little discussion since it is practically self-explanatory. Attention has been called to the fact that men work and produce at an advantage when surrounded by the best hygienic environment. This environment is determined by the quality of cleanliness, ventilation, light, heat and humidity control, water supply and toilet facilities. In addition there must be adequate supervision supplied to cover the conditions of restaurants, food, garbage, sewage, rest rooms, clubs, etc. Nor must we stop here, for we must study means of improving the personal hygiene of workers who are so cosmopolitan in their habits, behavior and beliefs. This more or less intangible factor is approached satisfactorily only through the one great channel which is after all the real power behind the successful administration of a medical service and that is—

EDUCATION

The close personal contact of the medical department with the individual employee gives the department an opportunity par excellence to conduct an extensive educational campaign in the activities already mentioned and no opportunity should be lost to thoroughly acquaint the worker with the advantages to be gained from a co-operation with the efforts set forth. The higher the plane of education of the mass of employees the less is the necessary amount of legislation and a minimum of necessary legislation produces a more smoothly running organization. The channels through which educational campaigns can be conducted in an industry are four and possibly five:

First, individual instruction by personal contact.

Second, training of foremen in a broader sense than is the customary standard. Too many foremen are trained for little save the management of machines, material and production. Too few are qualified as leaders which, of course, embodies the knowledge of and the handling of men who after all are the vital factors in production. These foremen

must be trained in the art of appreciating and managing their men which involves, of course, a knowledge of many of the facts already mentioned in this paper. In addition they must be qualified to instruct their men in many details of a physical nature too numerous to mention here, e.g., how to sit or how to stand at their work in order to avoid fatigue; how to lift to avoid back strain, hernia, etc., etc.

Third, educational propaganda by articles written for the usual periodicals or magazines that most industries publish. There should be at the disposal of the medical department at least a page of every issue to be devoted to general medical and health discussions as well as to more particular industrial problems, such as the control of infections, for the purpose of enlightening the general mass of readers on matters which, judging from the thousands of questions asked, would be appreciated and directly, of course, a mutual and actual benefit to the industry.

Fourth, educational propaganda delivered by attractive, interesting and instructive posters in appropriate places and not by the harsh, mandatory poster of the type such as "No Spitting Allowed" so commonly used and, of course, a product of legislation rather than of education.

Fifth, educational instructions through lectures and talks possibly, although this is not recommended as a successful measure for it is difficult to entertain a group of healthy people in this way and the effort is lost except on those who, neurasthenically inclined or suffering some illness, are personally interested. Curiously enough healthy people like to read articles and posters, like individual discussions, but chafe under the bondage of a formal talk or discussion.

When an industry has provided for the execution of a medical program that has thus far been outlined it has covered the greater part of the field of service and when the medical department has developed these provisions into a harmonious unit of co-operation with its allied departments then can it take on some of the problems of—

RESEARCH

The problems encountered when one turns to the field of investigation are so varied and enormous that at best they

can only be alluded to in passing for each is a book in itself. Research should be conducted along two general lines and with two efforts in view, e.g., first, the study of problems pertaining to better interests in industry, and second, the study of problems which will contribute to the science of medicine.

Pertaining to the first division many problems present themselves of which some are:

Statistical studies of the incidents of injury in relation to the age, nationality, degree of illiteracy, intelligence and education of the injured to ascertain what truths these may bring forth or what general laws they may evolve as a guide to employment.

Statistical studies of the incidents of injury in relation to the time of day, occupation and environment as a guide to the correction of the same where possible.

Studies of fatigue and its relation to injury.

Studies of absenteeism and causes.

Studies of many other problems such as the effect on workers of different temperatures, degrees of humidity, etc., all pertinent to employment, efficient service and production but too numerous to mention here.

Pertaining to the second division, no greater opportunity is offered anywhere for investigation along purely medical lines. Here we encounter opportunity to observe, handle, follow up and study all types of abnormalities, pathology and disease. No richer mass of clinical material exists anywhere in such tangible form and in the larger industries offers an enormous opportunity for practically any type of study.

This paper has, because of its rather broad range, been necessarily limited almost to outline in its character, for it is not possible in the space allowed to discuss any one of the subjects mentioned at any length but it is hoped that it has served its purpose of defining the efforts of medicine in industry.

EDITORIAL

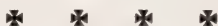
But far beneath this wondrous world upon the surface, another and still stranger world met our eyes as we gazed over the side. For, suspended in those watery vaults, floated the forms of the nursing mothers of the whales, and those that by their enormous girth seemed shortly to become mothers.

* * * Floating on their sides, the mothers also seemed quietly eyeing us. One of these little infants, that from certain queer tokens seemed hardly a day old, might have measured some fourteen feet in length, and some six feet in girth. He was a little frisky; though his body seemed scarcely yet recovered from that irksome position it had so lately occupied in the maternal reticule; where, tail to head, and all ready for the final spring, the unborn whale lies bent like a Tartar's bow.

* * * As when the stricken whale, that from the tub has reeled out hundreds of fathoms of rope; as after deep sounding, he floats up again, and shows the slackened curling line buoyantly rising and spiralling towards the air; so now, Starbuck saw long coils of the umbilical cord of Madame Leviathan, by which the young cub seemed still tethered to its dam. Not seldom in the rapid vicissitudes of the chase, this natural line, with the maternal end loose, becomes entangled with the hempen one, so that the cub is thereby trapped. Some of the subtlest secrets of the seas seemed divulged to us in this enchanted pond. We saw young Leviathan amours in the deep.

Moby Dick.

HERMAN MELVILLE.



Annals
Redivivus

The present readers of the ANNALS and that larger number who will soon become its readers are promised a treat in the restoration of their favorite medical magazine to its pristine eminence and usefulness. For a few years the gradual decline from its high standard has been a matter of regret and lamentation, the greater among those who had assumed the responsibility of production. This decadence was not altogether subjective in origin, as all know who have observed the uneven orbit of the publication world. The upheaval of the war, to which so many enterprises have succumbed, the diversion of thought

from its customary channels and, most especially, the call to action rather than reverie, reflection and study, have all seriously affected the output of medical literature. Then came the soaring of costs, the printers' strike, and the economic flurry, which for a time caused distress almost as poignant as that of armed conflict. Such, in brief, is a summation of the difficulties which beset the ANNALS, placed its financial status on the wrong page of the ledger and bade fair to send it, without shrift, into enterprises of the past, with nothing left of its brave career but a respectable history.

In the meanwhile the college and hospital have been re-organized and are speeding along in the path of a new era. Restitution has been effected and in every department are vigor and progress. The foundation having been established, perfection of the superstructure is now in hand, and not the least of this is the abundant use of type for the expression of the high order of technical work characterizing our institutions. It has been decreed that the ANNALS shall survive. Once more, after twenty-five years, conferences have been held and Trustees of the College, Governors of the Hospital, Faculty and Alumni have met and debated and planned for the consummation of this purpose. Hands have gone down into pockets for immediate relief and this generosity, it is expected, will find its compensation in a greater and wider patronage.

To the faculty, especially, are indebted the members of the Alumni Association under whose auspices the ANNALS exists. The heads of the different departments are enthusiastic in their promise of scientific contributions. The laboratories of today have the double function of instruction and research, and with each succeeding year the results of research approach more nearly the practical demands of the physician. It is the purpose to cultivate this contact, and the practitioner who wishes to know in what direction progress reaches, will find what he needs in the reports of these more remote departments to be supplied regularly to the ANNALS.

The committee of the Alumni Association, under whose auspices the ANNALS is published, will solicit the subscription of every alumnus, confident in his sympathy and in the

co-operation and interest which have always been awarded the Alma Mater. The new era is well represented in the staff whose energetic editorial participation is promised:

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Current Events: WILLIAM P. HOWARD, M.D.

New York State Medical Library: FRANCES K. RAY.

The history of the college is one of periodic reorganization. Each generation has done its work well, and with the passing of each, a new and younger force has been called, not without some explosive demonstrations. Medical thought changes and advances, and is vastly different today from that of the foundation of the college in 1838, and of its re-establishment in 1876. The good old institution has survived the ravages of time, and the chimes are heard again, as they have been heard through the ages:

Ring out the old! Ring in the new!

MEDICINE

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INDUSTRIAL MEDICINE**ANNOUNCEMENT**

The increasing interest attracted by the economic value of the services of the practice of medicine in the business world of today has encouraged the development in several first class medical colleges, of departments devoted to the study of medicine modified into a specialty adapted to serve the economic interests of the industrial world. This development, in addition to its stimulation of medical college departments, has encouraged the publication of journals which are of semi-medical character, but there is no journal of purely scientific medical tone given over to the problems of Industrial Medicine in general or more particularly to the problems in New York State where industrial life is such an important factor in economic growth; so it is deemed advisable to develop such an organ. This journal therefore has been adopted as the official mouthpiece of Industrial Medicine of New York State and henceforth will publish regularly reports, papers and news items of interest to the medical profession in general and more particularly to those who are carrying the services of the practice of medicine into industry.

D. GLEN SMITH.

COMPENSABLE DISEASES

The Workmen's Compensation Law of New York State as originally enacted made an employer liable for compensation for total permanent disability if an employee with but one arm or leg lost another member. The result was that men with but one hand, one arm, one foot, one leg, one eye, etc., became an excessive compensation risk. It became difficult for them to obtain any employment. The law accordingly was amended in 1915 and 1916 to provide in substance that an employee suffering from a previous disability should receive compensation for a later injury only in the amount to which he would be entitled when considering the later injury by itself and not in conjunction with a previous disability. The justice of the change in the law is obvious. It relieves the employer of liability where the condition is not due to the injury, thus removing the discrimination against the employment of men with only one member or organ, and placing them on the same footing as all other applicants for employment.

What has been said with regard to physical disabilities under the present law does not apply to infections or diseases which exist at the time of an injury, and which in the opinion of some doctor, may have been lighted up

or aggravated or turned into a disability by some trifling accident. The commission and the courts have held that if an accident might have contributed to the aggravation or lighting up of an existing diseased condition the entire resulting disability is compensable. A disability or death resulting from syphilis, paresis, typhoid fever, pulmonary tuberculosis, cancer, Bright's disease, arterio-sclerosis, apoplexy (or paralysis), glaucoma, cataract and other diseases, may thus be made the basis of compensation awards, though the intent of the law was to compensate only for the disability resulting from traumatic injury and such disease or infection as would naturally and unavoidably result from the particular injury.

The result of this condition has greatly extended the liability on the part of the employer who does not examine applicants for employment with special reference to existing diseases or infections. Under existing conditions it seems that the time is not far distant when men who are physically able to earn a living will find any employment difficult because some non-communicable infection or disease has made them an abnormal compensation risk for any employer. It may easily result in classifying as unsuitable for employment all applicants suffering from any disease or infection which may become compensable under the law, and even the possible extension of the field of industrial medicine to a periodical examination of all employees to eliminate those suffering from diseases.

The fair and rational solution seems to be to amend the compensation law as was suggested at the recent hearing before the Legislative Committee in New York to provide, as the law originally intended, that compensation shall not be paid for existing infections or diseases, but shall be limited to the disability resulting from a traumatic injury itself and such infection or disease as shall naturally and unavoidably result therefrom. A large proportion of applicants for employment are suffering from some disability, some of whom have progressive diseases that may eventually result in total disability or death. These applicants however have a long period of usefulness to the community and to the industries of the State. They should be allowed to work and earn an honest living as long as they are able. The present discrimination in the law should be removed so that any employer may offer them employment without threat of heavy liability for so doing.

R. MOOT.

PATHOLOGY AND BACTERIOLOGY

Edited by VICTOR C. JACOBSON, M. D.

ASSOCIATE EDITOR

LAWRENCE J. EARLY, M. D.

**PATHOLOGICAL CONFERENCE HELD AT THE
ALBANY HOSPITAL**

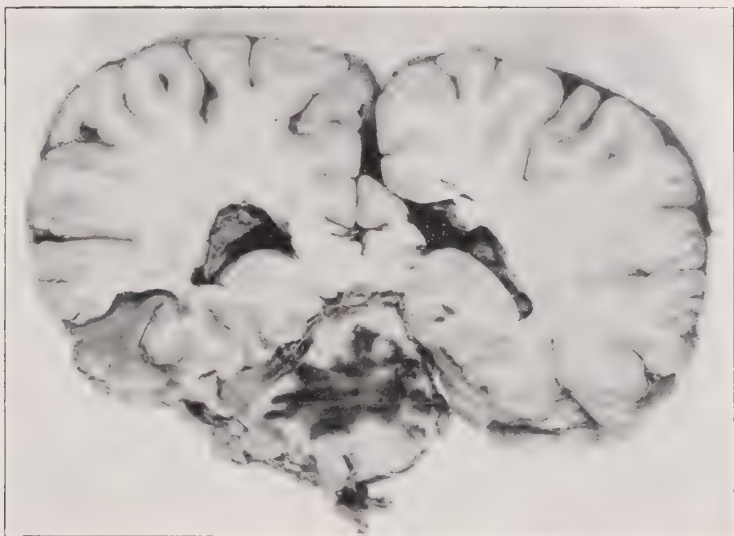
December 16, 1921

Reported by HAROLD E. MARDEN, M.D.

The meeting was held in the surgical amphitheater, the first of a series of conferences, the purpose of which is to present and associate the clinical and postmortem findings in instructive cases. While primarily for the third year class of the Albany Medical College, physicians who are interested in this method of teaching are invited to the meetings which will be announced a week in advance. In a few brief opening remarks Dr. Victor C. Jacobson outlined the purposes of these conferences and emphasized the fact that their continuance is dependent upon the successful efforts of the staff of the hospital to secure postmortem examinations. The clinical discussion was conducted by Dean Ordway.

CASE I

Chauffeur, age 53, married, has two children. Admitted to the hospital at 4 p.m., September 1, 1921, in a state of unconsciousness.

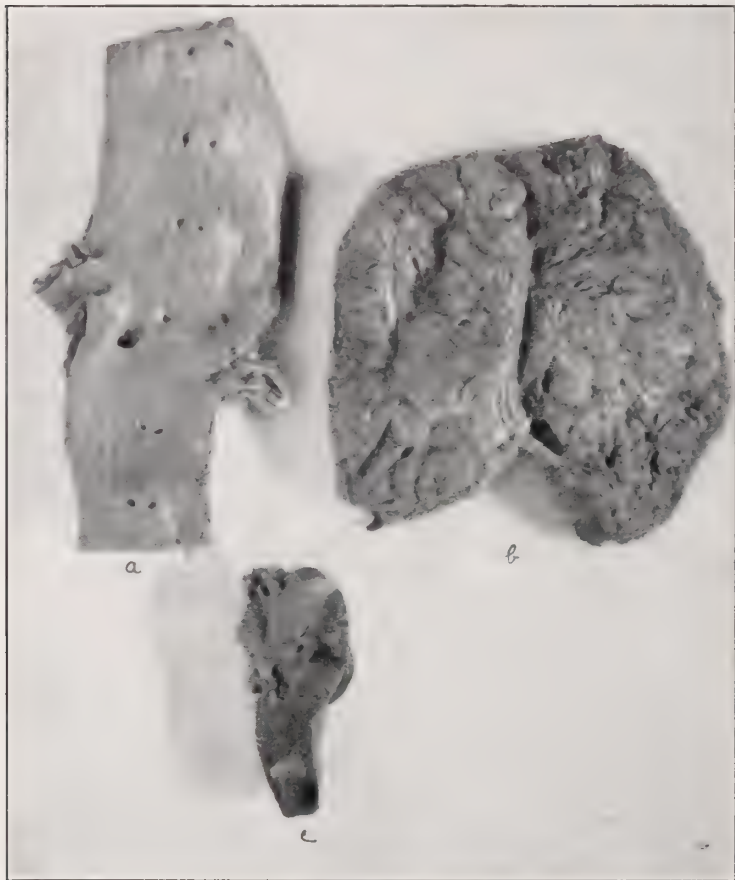
**CASE I, PLATE I**

Section Showing Hemorrhage into Cerebellum and Pons

Past History. A sudden attack, diagnosed "phlebitis," a pain and weakness in one leg several weeks ago, followed by a similar attack in the other leg. Partial improvement of both legs followed.

Present Illness. Two days before entrance, the patient suddenly lost his speech, gradually became drowsy, and finally passed into a comatose state.

Physical Examination. Patient is comatose and moderately cyanotic. Respirations are Cheyne-Stokes in type. The pupils are small and equal but do not react to light. The right side of his face shows a slight droop-



CASE I, PLATE II

- (a) Abdominal Aorta Showing Atheroma; Organized Thrombus in Left Renal Artery
- (b) Mass of Fat at Site of Left Kidney with Vague Outlines of Kidney Substance
- (c) Portion of Right Kidney Containing Recent Infarct

ing, and the right side of his body motor weakness, with reflexes not definitely altered. Otherwise the examination is negative.

Clinical Course.—Patient seemed comfortable after entrance, but would not swallow his medicine. At 7 p.m. he fell out of bed, and was moved from ward to recovery room.

Medication.—Nitroglycerine, gr. 1 50 q.h., Morphia, gr. 1 6 at 8:35 p.m. Fluid extract of Ergot, gtt. viii. q. iv. h.

Outcome.—Death at 8:55 p.m. or four hours and fifty-five minutes after admission.

DISCUSSION

The following diagnosis were considered: (1) Multiple cerebral emboli originating probably from a vegetative endocarditis. The possibility of emboli arising from thrombi in the veins of the leg, entering the arterial circulation through a patent ductus arteriosus or foramen ovale, was mentioned but considered very unlikely; (2) encephalitis with multiple focal lesions; (3) cerebrospinal lues; (4) cerebral hemorrhage; (5) brain tumor; (6) uremia and cerebral edema; (7) cerebral thrombosis was suggested by Dr. W. P. Howard; (8) brain tumor with hemorrhage was mentioned by Dr. L. W. Gorham as a possibility.

In summarizing, Dr. Ordway pointed out that the history and physical findings were indicative of numerous small focal lesions within the central nervous system, best explained by the first of the suggested diagnoses, namely, a vegetative endocarditis with multiple cerebral emboli.

The pathological lesions found at autopsy were demonstrated by Dr. Jacobson. They were as follows: Massive subpial hemorrhage over the right temporal and parietal lobes, subacute and chronic vegetative aortic endocarditis, multiple focal areas of hemorrhage and softening scattered through the cerebrum, cerebellum and pons. A few arterioles in the focal necroses in the cerebrum were occluded by bland emboli. In addition an organized thrombus occluded the left renal artery, the left kidney being replaced practically entirely by fat; multiple recent anemic and hemorrhagic infarcts of the right kidney, an infarct 2 cm. in size in the wall of the left ventricle of the heart, primary carcinoma of the intrahepatic bile ducts, widespread invasion of the perivascular lymphatics of the lungs by the tumor, metastatic nodule in the left adrenal.

Lantern slides were shown of photographs of various sections through the cerebrum, cerebellum and pons, of the right and left kidneys and aorta. Preserved gross specimens of the organs were exhibited.

The absence of embolic lesions in the skin was commented upon but it is possible they were overlooked. Attention was called to other unusual features in the case, primary carcinoma of the intrahepatic bile ducts with metastasis to lungs and left adrenal, in an individual in early middle life, no tumor emboli being discovered except in the blood and lymph vessels of the lungs and left adrenal. The cerebral, renal and cardiac infarctions were caused by emboli from the aortic vegetations.

CASE II

White boy, age 14 years, entered the hospital September 2, 1921, complaining of pain in abdomen, right ear and neck.

Past History.—For several years he had suffered pain in the right ear, without discharge. Appendicectomy was performed one year ago. In June, 1921, he was advised by his school physician to have his tonsils and adenoids removed.

Present Illness.—On August 29, 1921, tonsillectomy was performed and he was allowed to go home the next day. Two days after operation pain appeared in the right ear, radiating down the neck. On the following day a physician removed from the right ear a piece of wood which had penetrated the ear drum. Shortly after removal of the wood patient vomited and suffered successive attacks of orthopnea, and later convulsions.

Physical Examination.—Patient is stuporous; pulse 126, respirations 40, axillary temperature 103 degrees. Eyes are "partially fixed." No facial palsy. Jaws are firmly set and there is rigidity of the neck. There is a slight discharge of pus from the right ear. No Kernig. Lungs are negative. Heart shows a systolic murmur at the apex.

Clinical Course and Medication.—At 7:30 p.m., September 2, a cutaneous test was made with $\frac{1}{2}$ cc. of tetanus antitoxin. At 8:30 p.m. 2,500 units of tetanus antitoxin were given intravenously. At 9:00 p.m. after 15 cc. of clear spinal fluid was withdrawn under pressure, 7,500 units of tetanus antitoxin were given intraspinally. At midnight 26,000 units were given intravenously and 16,000 units intramuscularly. Morphia, gr. $\frac{1}{4}$. Tap water by rectum. On September 3, the leucocyte count was 45,200 (in blood), and another lumbar puncture yielded turbid fluid under considerable pressure. Patient was very restless, needing a restraining sheet, but had no convulsions. Pupils were even, 1 mm. in diameter. No real trismus was noticed. Neck remained rigid. There was resistance to passive motion of arms and legs; bilateral Kernig and Babinski. Morphia, gr. $\frac{1}{12}$ at 11 a.m., 3 p.m. and 6 p.m. On September 4, patient was seen by the visiting oculist, who found a high degree of hyperopia and astigmatism but no choked disc. The right ear showed purulent otitis media, the left ear drum congestion.

Cultures from the right ear yielded Gram negative bacilli of two types, (1) *B. Pyocyaneus*, (2) a Gram negative short bacillus, slightly motile and fermenting eight sugars. No organisms were found in the spinal fluid. Mononuclear cells predominated, only a few polymorphonuclear cells being present. Globulin three plus.

On the morning of September 4, patient was very weak, his body was cold from his feet to neck, head was intensely hot. Respirations were very shallow and rapid. Pulse could not be felt after 7 a.m., September 6. Cyanotic spots appeared on body and death occurred at 8:30 p.m.

DISCUSSION

The clinical diagnoses were (1) purulent meningitis secondary to otitis media and temporal lobe abscess, (2) tetanus.

The necropsy findings were: Purulent leptomeningitis, subacute otitis media and otitis interna of the right ear with acute osteomyelitis of the petrous portion of the right temporal bone, and acute aortitis.

A colored lantern slide showed the aortic valve and ascending portion of the aorta stained in gross with Scharlach R, the focal deposits of fat in the intima standing out as deep red areas in sharp contrast to the faint yellowish pink of the normal lining. Polymorphonuclear leucocytes and endothelial cells were present in numbers in these fatty plaques.

A brief résumé of the case might be as follows: A boy who for several years had had tonsillar trouble with adenoids, associated with pain in his right ear. Following tonsillectomy the boy had inserted a stick of wood into the painful ear producing purulent otitis media and interna. Direct extension of the inflammatory process occurred through the floor of the skull in that region with ensuing meningitis and death. The early spastic symptoms which simulated tetanus were due probably to meningismus or actual meningitis. The flora of the aural exudate was mixed, bacillus pyocyaneus and an organism of the colon group being present. The meningeal exudate contained a few cocci which sometimes occurred in short chains but which could not be grown.

CASE III

Business man, age 68, was first seen August 31, 1921, complaining of indigestion of a few days duration, manifested by gaseous eructations and a sense of fullness after meals. One year ago he had a very acute attack of "indigestion," with a sharp pain in the pit of his stomach, nausea and vomiting. He did not consult a physician, but rested a few days and then felt normal again. Since that time, however, he has noticed a gradual loss in weight, some dyspnoea on walking up hill, and more or less gastric disturbance. Otherwise his past history is unimportant, except that he has apparently been an active hard-working man of good habits and good health for many years. He has never had a doctor.

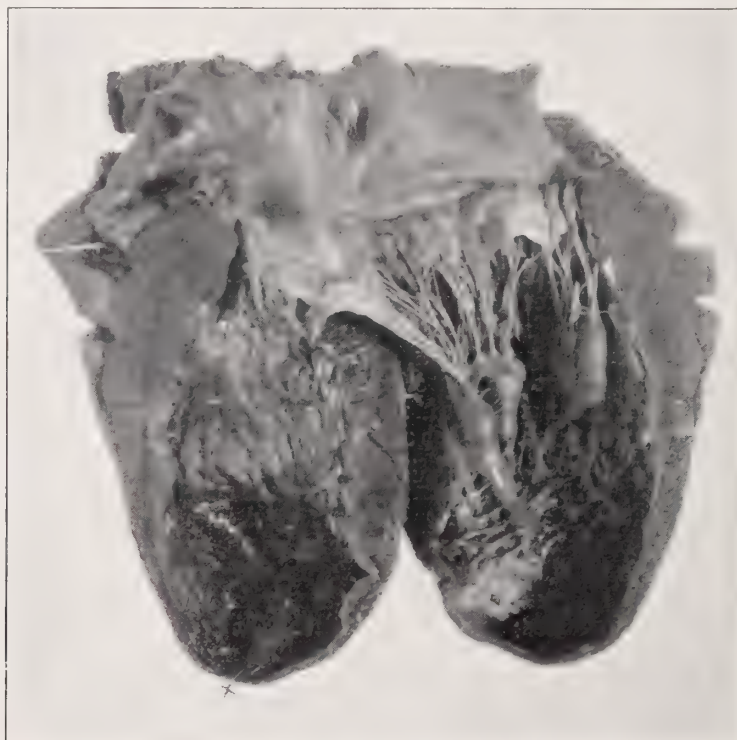
Physical Examination.—Patient is a well built man who has evidently lost some weight. The skin is sallow, the mucous membranes of fair color. He looks tired. Pulse 80, respirations normal. Pupils react to light. Nose, ears and throat negative. Throid and lymph nodes are not enlarged. Chest-wall is well formed, costal angle wide. Lungs are super-resonant. Heart is distinctly enlarged. Apex is in the sixth interspace and well outside the nipple line; forceful contractions. On auscultation rhythm is regular, sounds clear, although the first sound is roughened. Blood pressure, 140/80. Liver is not enlarged; spleen not palpable. Abdomen is negative except for an inguinal hernia. There is no peripheral oedema. Knee jerks are present. Urine contains albumin and many hyalin and granular casts.

Treatment.—Advised moderation in mode of life and to keep under observation. Four days later the patient was found dead in bed.

DISCUSSION

The clinical diagnoses in order of their probability were: (1) coronary artery disease, possibly having progressed sufficiently to cause infarction and rupture, (2) a neoplasm of the gastro-intestinal tract.

The postmortem findings were hemopericardium due to rupture of the apex of the left ventricle which was the seat of an old infarct with aneurysmal dilatation; marked arteriosclerosis of the anterior descending branch of the left coronary artery with occlusion of the lumen by atheroma and old thrombus. A lantern slide was shown of a sagittal section of the heart. The absence of more than a small mural thrombus in the ventricle was pointed out by Dr. Jacobson and the important protective action of such a thrombus against rupture of an infarcted myocardium was emphasized. Dr. Ordway called attention to the remarkable variety of the subjective manifestations of coronary artery disease, vague complaints of indigestion, epigastric distress with eructations of gas after meals, precordial pain, dyspnoea and a sense of oppression upon slight overexertion, while the



CASE III, PLATE I

Heart—Sagittal Section Showing Thinning of Old Infarcted Apex, Lack of Mural Thrombus, Rupture at (X)

physical findings may be nearly or altogether negative. Dr. Gorham suggested that, in the case presented, the attack of so-called acute indigestion about a year before death may well have been the time of the original infarction. From a pathologic point of view this seems very possible.

CASE IV

Polish-American insurance agent, age 42, entered hospital October 11, 1921, complaining of cough, weakness and general malacia.

Family History.—No tuberculosis or cancer in family; father died at 52 of apoplexy, mother at 67 of "old age." Patient states that his wife has had four miscarriages.

Past History.—Measles in childhood, pneumonia twice, and dry pleurisy. Chronic cough for years. Appetite and digestion good, slight constipation. Admits gonorrhea and chancre 22 years ago. Chancre was treated by cautery. Average weight 129 lbs. in 1915, now 109 lbs.

Present Illness.—Ever since January 1, 1921, patient has noticed gradually increasing dyspnoea and weakness. Cough has grown worse, with profuse purulent expectoration, pain in the right chest, but without hemoptysis. Very seldom he has had night sweats. Loss of weight of six pounds since January 1, 1921. For two months past, patient has experienced attacks of vertigo, and spells of fainting. He followed his work continuously until one week before admission to this hospital.

Physical Examination.—Asthmatic squeaks and moist rales from the second rib to the bases (posteriorly) in both lungs with restricted mobility and increased whispered voice. Accentuated P2. Heart regular. Retrosternal dullness 8 cm. Slight tenderness and resistance in epigastrium.

X-Ray Report, from Mt. McGregor Sanatorium. Spine: Straight. Heart: Apparently displaced; shadow cannot be identified. Right lung: Sprouting from the lower pole of the hilus is a large mass (parenchymatous invasion), rather characteristic of a pulmonary abscess. Remaining lung tissue appears emphysematous. Left lung: Slight amount of mottling at apex; a large mass with a fairly clean cut border occupies the hilum and extends from an inch at the right of the sternum to about two and one-half inches to the left. This mass is round and very dense; base of lung is emphysematous. *Diagnosis:* Abscess, right lung. Left lung is probably tuberculous at apex. Emphysema is due to pressure in main bronchi by a mass which may be an aneurysm or an abscess in mediastinum. Plates read October 11, 1921.

Fluoroscopic Examination of chest shows a definite shadow at the base of right lung, similar in character to that observed in plate. The mass in mediastinum is definite, does not appear to pulsate and extends backward to the spine. Both diaphragms are seen clear and moving; left somewhat limited. On allowing the patient to swallow barium solution the œsophagus is traced backwards to the spine, passing behind the dense mediastinum shadow. No obstruction to the barium is offered.

October 11, 1921. A satisfactory examination of the larynx was difficult owing to dyspnoea and constant expectoration. As far as could be seen

the movements of the cords are equal on both sides. The larynx is extremely pale but there is no evidence of recurrent laryngeal involvement.

Clinical Course.—Temperature, 98.6 degrees on admission, continued normal. Pulse, 100 to 120. Respiration, 28 to 32. Blood pressure, 110/80. White blood count, 13,600 to 14,500. Urine, mucus shreds and trace of albumin. Blood Wassermann, plus, both antigens.

Medication.—Veronal, gr. v each night, KI, gr. xv and protiodide mercury, gr. $\frac{1}{4}$, t.i.d.

Course of Disease.—On third day in hospital, October 14, 1921, patient complained of increased pain in abdomen, with loss of appetite. Dyspnoea and cyanosis were markedly increased and the patient died at 7 p.m.

DISCUSSION

In considering the case Dr. Ordway summed up the clinical findings; a history of a chancre at the age of twenty, a statement that the patient's wife had had a number of miscarriages, a positive blood Wassermann reaction report, increased retrosternal dullness, a chronic cough. These



CASE IV, PLATE I

Photograph Showing Saccular Aneurysm
of Ascending Aorta Beginning 2 Cms.
Above Aortic Valve

CASE IV, PLATE II

Aneurysm Opened Showing Mural
Thrombus and Syphilitic Aortitis

facts demand radiographic and fluoroscopic examination of the patient's chest to determine the presence of an aortic aneurysm, or a mediastinal neoplasm.

X-ray plates of the patient's chest were shown, a large mediastinal mass being visible. Dr. J. M. Berry stated that at the time the patient was admitted to the hospital the mass was thought to suggest a tumor or abscess, rather than an aneurysm. Fluoroscopic examination of the patient's chest was made at Mt. McGregor Sanatorium but the mediastinal mass was found not to pulsate and bismuth given by mouth showed that the œsophagus passed behind the mass and was not compressed.

Dr. T. O. Gamble brought out the point that syphilis, while a common cause of premature labor, is rarely the cause of miscarriage, the term miscarriage being frequently misused.

The autopsy findings were: (1) a saccular aneurysm of the ascending aorta with filling by old and recent thrombus, (2) syphilitic aortitis, (3) purulent bronchitis of middle lobe of right lung, (4) healed apical tuberculosis of the right lung, (5) bilateral chronic adhesive pleuritis, (6) ascites, hydropericardium, (7) chronic prostatitis. Microscopic examination showed in addition chronic syphilitic penumonitis of interstitial and bronchiectatic type, chronic hepatitis probably of syphilitic origin, and chronic epicarditis of the left ventricle. There was also chronic epididymitis, probably gonorrheal. The ducts of the epididymis contained many spermatozoa and large mononuclear phagocytic cells which were filled with engulfed spermatozoa. Lantern slides were then shown of the preserved specimen, consisting of the heart and aorta, with the large saccular aneurysm opened to show the thrombus within. Dr. Jacobson pointed out that the thrombus was undoubtedly responsible for the non-pulsating character of aneurysm, and also emphasized the importance of the thrombus in preventing rupture of an aneurysm as well as preventing rending of the myocardium in an infarcted heart.

In conclusion a number of microscopes with slides from the cases under discussion were arranged, and the gross specimens were placed so that they could be examined at close range.

CURRENT EVENTS

Edited by WILLIAM P. HOWARD, M. D.

ALBANY DEPARTMENT OF HEALTH

STATISTICS, NOVEMBER, 1921

DEATHS FOR THE MONTH OF NOVEMBER, 1921

Tuberculosis	10	Apoplexy	15
Typhoid Fever	0	Cancer	9
Diphtheria	2	Accidents and Violence	15
Scarlet Fever	0	Deaths under one year	14
Whooping Cough	0	Deaths over 70	34
Measles	0	Death rate (non-residents in-	
Diarrheal Diseases	1	cluded)	14.35
Pneumonia	7	Death rate (non-residents ex-	
Broncho-pneumonia	8	cluded)	12.03
Influenza	3	Births	189
Grippe	0	Still Births	7
Bright's Disease	11		

DIVISION OF COMMUNICABLE DISEASES

Typhoid Fever	4	Mumps	2
Scarlet Fever	7	Pneumonia	69
Diphtheria and Croup	52	Influenza	13
Chickenpox	84	Septic Sore Throat	1
Smallpox	0	Poliomyelitis	1
Measles	4	Encephalitis Lethargica	1
German Measles	0	Puerperal Septicaemia	1
Whooping Cough	15		—
Tuberculosis	18	Total	272
Number of days quarantine for scarlet fever:			
Longest	30	Shortest	30
Number of days quarantine for diphtheria:			
Longest	29	Shortest	11
Fumigations:			
Rooms	141	Buildings	38
Milk bottles disinfected			425

MISCELLANEOUS

Tuberculosis

Living cases on record November 1, 1921	590
Cases reported:	
By card	14
Dead cases by certificate	4
	— 18
	608

CURRENT EVENTS

41

Dead cases previously reported.....	6
Dead cases not previously reported.....	4
Removed.....	10
Died out of town.....	2
Recovered.....	0
Unaccounted for.....	0
	<hr/> 22
Living cases on record December 1, 1921.....	586
Non-resident deaths.....	1
Resident deaths.....	9

LABORATORY REPORT

Diphtheria

Initial positive.....	102
Initial negative.....	647
Release positive.....	159
Release negative.....	521
Unsatisfactory.....	24
	<hr/>
Total.....	1453

Sputum for Tuberculosis

Positive.....	16
Negative.....	117
Unsatisfactory.....	0
	<hr/>
Total.....	133

Widals

Positive.....	3
Negative.....	14
Unsatisfactory.....	3
	<hr/>
Total.....	20

Meningococcus

Positive.....	0
Negative.....	0
	<hr/>
Total.....	0
	<hr/>
	<i>Wassermann Tests</i>
Positive.....	66
Negative.....	232
Unsatisfactory.....	8
	<hr/>

Total.....306

Gonorrhea Examinations

Positive.....	25
Negative.....	83
	<hr/>
Total.....	108

Milk analyses.....191

Water analyses.....	0
Pathological examinations....	0
Miscellaneous examinations..	0
	<hr/>

Total examinations....2211

DIVISION OF MARKETS AND MILK

Public market inspections....	16	Milk depots inspected.....	43
Market inspections.....	77	Inspections of stores selling	
Fish market inspections.....	11	milk.....	16
Slaughter house inspections..	1	Dairies inspected.....	63
Rendering establishment in-		Milk houses examined.....	63
spections.....	1	Milk cans inspected.....	101
Pork packing house inspections	6	Milk cans condemned.....	0
Hide house inspections.....	0	Complaints investigated.....	0
Cows examined.....	678	Poultry condemned.....	122 lbs.
Cows quarantined.....	0	Asparagus condemned....	48 cans
Cows rejected.....	12		

THE ALBANY GUILD FOR PUBLIC HEALTH NURSING

REPORT FOR NOVEMBER, 1921

1. *Number of new cases this month*, 265. Classified economically, free, 120; bed cases, 19; prenatal, 16; dispensary social service, 55; tuberculosis (pos.), ; tuberculosis, (super.), 13; venereal social, 17. Paid, 145; limited means, bed cases, 77; metropolitan bed cases, 49; metropolitan prenatal, 19; Western Union, 0. Cases carried over from last month, 717. Classification of bed cases: Medical, 110; surgical, 3; obstetrical, 37; prenatal, 35; confinements, 32; maternity, 5; miscarriages, 2; number of babies born, 37.

2. *Visits of Nurses* (all departments), 1,735; for bed care, 1,044; prenatal instruction, 108; tuberculosis (sup. and inst.), 104; venereal disease instruction, 18; general social service, 183; for other purposes, 122; dispensary social, 107; supervision, 49; metropolitan agents, 44; doctors, 95; nurses, 9; dispensary, 3; family or friends, 25; other sources, 4.

3. *Disposition of Bed Cases.*—Discharged recovered, 70; discharged improved, 40; discharged unimproved, 15; discharged dead, 5; discharged to other care, 30; carried, 144. Disposition of other cases: Prenatal: Discharged to maternity care, 37; discharged to hospital, 12; discharged to other care, 5; carried, 41. Dispensary social service: Dis. dispensary care, 41; carried, 0. Venereal: Discharged cured, 6; discharged temporarily (non-ven.), 2; discharged to other care, 0; carried by dispensary, 61; carried under super., 38; carried under care at the House of Good Shepherd, 26. Tuberculosis: Discharged dead, 3; discharged left town, 5; discharged not T. B., 0; carried (positive, supervision), 426. Total number of cases carried over into December, 736.

4. *South End Dispensary Report.*—Number of clinics, 115; surgical, 13; medical, 8; gynecological, 8; prenatal, 5; eye and ear, 17; venereal, 11; nerve, 3; nose and throat, 9; skin, 5; children, 6; lung, 4; children's lung (observation), 4; children's heart (clinic), 4; children's obser., 4; pre-school, 9; clinics with doctor attending, 110; clinics without doctor attending, 5. Number of new patients treated, 186; number of old patients treated, 950; total number of patients treated, 1,136.

ACTIVITIES OF SOCIETIES

OFFICERS ELECTED BY THE ALBANY COUNTY MEDICAL SOCIETY, FOR 1922.—President, Thos. W. Jenkins, M.D. (re-elected); Vice-president, Nelson K. Fromm, M.D. (re-elected); Secretary, E. Martin Freund, M.D.; Treasurer, John E. Heslin, M.D.; Board of Censors: F. C. Curtis, M.D., Andrew MacFarlane, M.D., John Gutmann, M.D., L. B. Mount, M.D., Harry V. Judge, M.D. Delegates to the State Society: H. E. Lomax, M.D., Joseph O'Brien, M.D. Alternate delegates: Joseph J. Bowers, M.D., William D. Allen, M.D., G. Emory Lochner, M.D.

OFFICERS ELECTED BY THE RENSSELAER COUNTY MEDICAL SOCIETY, FOR 1922.—President, Chester A. Henstreet, M.D.; Vice-president, A. J. Hambrook, M.D.; Secretary, D. W. Houston, Jr., M.D.; Treasurer, R. F. Benson, M.D.

AMERICAN ROENTGEN RAY SOCIETY.—The Eastern Section of the American Roentgen Ray Society will hold its third annual meeting at Atlantic City, N. J., January 26, 27 and 28. Headquarters, Ritz-Carlton.

PUBLIC HEALTH INSTITUTES

These are to be held during 1921-22 under the auspices of the State Boards of Health and the United States Public Health Service in the following cities: New Orleans, La., Pittsburgh, Pa., Kansas City, Kans., Columbia, S. C., Jacksonville, Fla., Spokane, Wash., Dallas, Tex., Detroit, Mich., Newark, N. J., Birmingham, Ala., Chicago, Ill., Albany, N. Y., Memphis, Tenn., Minneapolis, Minn., Denver, Colo., Louisville, Ky., Hartford, Conn., Washington, D. C., Indianapolis, Ind., Portland, Ore., Atlanta, Ga.,

The Albany Institute will be held under the auspices of the New York State Department of Health, from Monday, April 24, to Saturday, April 29, 1922. Dr. Joseph S. Lawrence is the director of the Institute. The Albany Medical School will co-operate.

Courses.—The Albany Institute will be composed of a group of four or five schools. Among those which have already been decided upon are:

A school of venereal disease control.

A school on the prevention and treatment of tuberculosis.

A school of child hygiene.

A school of communicable diseases.

The forenoon of each day will be devoted to lecture work. The afternoons will be devoted to clinics. The evenings will be devoted to round-table discussions.

Lecturers.—The following lecturers have already been definitely scheduled:

Michael M. Davis, Jr., Ph. D. (Clinics and health centers).

John A. Fordyce, M.D. (Syphilis).

Valeria H. Parker, M.D. (Protective social work).

George C. Whipple, S.B. (Sanitary engineering).

Rachelle S. Yarros, M.D. (Medical social work).

Other lecturers of nation-wide reputation will be added.

Special Features.—A dinner, with prominent officials as guests of honor, will be held Monday evening and other special features arranged.

EPIDEMIC JAUNDICE

The following circular communication was received by the State Department of Health, December 27, 1921:

Within the past week or two we have received through our sanitary supervisors reports of several outbreaks of what appears to have been epidemic jaundice. The outbreaks of which we have knowledge have occurred in the towns of Georgetown, Madison County, Hannibal, Oswego County, Macomb, St. Lawrence County and in the City of Oswego. As we have only learned of these incidentally we think it possible that the disease has occurred elsewhere and if so we should like very much to be informed of the fact either through the health officer, the sanitary supervisors of this department or through direct communication with the central office.

The first of these outbreaks which came to our attention occurred in the Village of Berkshire in April, of 1920. A further extensive outbreak occurred in Chenango County and the adjacent part of Delaware County

during January of this year. The disease appears to be of a mild character, no deaths having been reported. However, this does not mean that it may not assume a severe character in the future. The disease has not been identified with the spirochetosis icterohemorrhagica which is quite prevalent in Japan and which was of frequent occurrence in the trenches during the World War.

In Japan the disease is characterized by very high mortality (from thirty to fifty per cent), a mortality vastly in excess of that recorded in any other part of the world. In fact, elsewhere the mortality has been very low. In Japan a spirochaeta has been found quite constantly present in the cases and the same organism has also been discovered in rats, while an organism apparently identical with the Japanese spirochaeta has been discovered in wild rats both in France and the United States. It has not been found associated with human cases in any American outbreak so far as we have been able to discover.

The State Department of Health is very anxious to conduct an investigation of any outbreaks which may arise for the purpose of establishing the identity of the disease, its mode of transmission and measures that should be taken to control it. We shall therefore appreciate hearing from you immediately, by telegraph or telephone, in the event that a number of such cases occur in your practice in order that an investigation may be begun promptly. If you have observed any undue prevalence of jaundice in the past we would like to have a description of the cases together with pertinent epidemiological data, particularly with reference to the prevalence of rats.

HEALTH TALKS

The Health Service Committee of the Albany County Chapter American Red Cross has arranged for a series of Health Talks to present the first principles of personal and community hygiene in a non-technical and popular manner.

The following program is now being carried out in the lecture room of the Albany Institute and Historical Art Society on Sunday afternoons at 4 o'clock:

November 13th, Diet and Disease, Dr. Graham Lusk; November 20th, Disease of Adult Life, Dr. T. Ordway; December 4th, Cancer and Its Ravages, Dr. Clinton B. Hawn; December 11th, Occupation and Disease, Dr. MacFarlane; December 18th, Water Supply and Waste Disposal, Dr. A. Holmquist; January 8th, Tuberculosis and Its Prevention, Dr. W. E. Lawson; January 15th, Child Welfare, Dr. Henry Shaw; January 22nd, School Hygiene, Dr. McCord; January 29th, Food and Nutrition, Miss Mary McCormack; February 5th, The Milk We Drink, Mr. Harry Winters; February 12th, Microbes—Good and Bad, Dr. Augustus Wadsworth; February 19th, Teeth and Their Preservation, Dr. George Cad-dick; February 26th, Control of Communicable Disease, Dr. Brooks; March 5th, Mental Hygiene, Dr. Thomas W. Salmon; March 12th, Public Health Nursing, Miss Murray; March 19th, Vital Statistics, Dr. Otto Eichel; March 26th, The Work of the City Department of Health, Dr. Arthur Sautter; April 2nd, The Work of the State Department of Health; Dr. M. Nicoll.

ALUMNI NOTES

Edited by CHARLES C. DURYEE, M.D.

1858

★ DR. CHARLES HUTCHINSON died at his home in Portland, Maine, on December 5, 1921, aged 90 years. For the first year after graduation Dr. Hutchinson practiced at Cape Elizabeth, Maine, and then removed to Waterford where he acquired a large practice which was interrupted by the Civil War. In 1862 he was appointed assistant surgeon in the army, and was sent to Richmond, Va., where he served in the Seven Days' Fight, but he was soon prostrated by malaria and was obliged to return home. For the following nine years he practiced in Gray, and then removed to Portland and continued in active work for about forty years more. His family consisted of his wife and daughter, who died before him, and a son who is practicing law in Portland.

1867

★ DR. WILLIAM H. MURRAY, Postmaster of Albany, N. Y., died suddenly at his desk in the post office on the afternoon of November 29, 1921. Dr. Murray was born December 2, 1845, and spent his boyhood in Ossining, where he manifested some interest in the profession of medicine, even before he entered upon his academic course. In his early days he was a protégé of Governor Hoffman, and this acquaintance may have had something to do with his choice of Union for his college work, as Governor Hoffman was always a staunch friend of his Alma Mater, and at one time an energetic member of its board of trustees. After Dr. Murray's graduation from Union in 1867, he continued his studies at the Albany Medical College, and received his diploma with the class of 1869. He practiced profession continuously in Albany, as a general practitioner or family physician, until his appointment as postmaster, and even then he responded occasionally to the calls of his old patients. Dr. Murray early manifested an inclination to politics, was at one time a member of the county board of supervisors, and for a number of terms was a member of the city board of aldermen. He happened to be president of the common council during an interregnum, so that for a time he was acting mayor of the City of Albany. He was appointed postmaster of Albany by President Wilson on March 1, 1914, and again on November 21, 1918. Of Dr. Murray's character it may be said that he accomplished the unusual feat of combining the practice of medicine and politics. It is well recognized that this arrangement of vocations is usually fatal to success, and it is probably owing to the rare combinations constituting Dr. Murray's character that he was able to maintain a position of high regard in the community under this difficult dual role. He held the esteem of his patients, and his public services were rewarded by the responsible official position which he held when his life closed. There were some typical evidences of his ability in the administration of the post office. The em-

ployees spoke of him with affection, and familiarly designated him as the "easy boss." But this involved no criticism of his discipline, for during his administration of nearly eight years the efficiency of the post office was at its highest point, and even during the troublesome period of the war there were no complaints. Dr. Murray frequently conferred with the superior authorities at Washington; attended all conventions of post office officials, and acquainted himself with the principles of the department, so that from time to time changes were made which were greatly to the advantage of the public. It is interesting to note that a very modest and retiring man, who had little desire for publicity, and who never in any way extolled himself, should have proved so effective, and should have lived a highly successful life upon the simple plan of quietly attending to his own business, and of doing his duty.

1873

★ DR. CHARLES E. CRANDALL died at his home in Hudson Falls, N. Y. of cerebral hemorrhage, on October 12, 1921, aged 73 years. Dr. Crandall began practice in Bacon Hill, New York, after a few years removing to Schuylerville. In 1890 he removed to Greenwich, and practiced there about two years. He then removed to Fort Edward, and two or three years later to Hudson Falls, where he remained until his death. The later years of his life were devoted to office practice exclusively. Dr. Crandall had a wonderful faculty for establishing a flourishing business wherever he went, but he never seemed able to overcome a roving disposition. He leaves two sons and two daughters, one of the latter being a professional nurse.

WILLIAM B. WEBSTER.

1881

Owing to the death of Dr. Chaloner, historian of the class of 1881, DR. WILLIAM B. WEBSTER of Schuylerville, N. Y., has, at the request of members of the class, undertaken to prepare a class history for presentation at the next meeting of the Alumni Association. It is hoped that members will reply to Dr. Webster's letter promptly.

1889

DR. F. S. DEYOE, who has practiced many years at Hunter, Greene County, N. Y., has been appointed health officer of that village.

1891

DR. JAMES W. WILTSE, 176 State Street, Albany, N. Y., has received the appointment of health officer of the City of Albany and will assume his duties January 1, 1922.

1892

DR. ROBERT A. HEENAN of Hudson Falls, N. Y., who has been seriously ill for several weeks, has recovered and resumed his practice.

1899

DR. THOMAS W. SALMON has been appointed Professor of Psychiatry at the College of Physicians and Surgeons, Columbia University, New York City. Dr. Salmon has resigned from the staff of the Rockefeller Foundation, but will continue to serve as Medical Director of the National Committee for Mental Hygiene.

1903

DR. FREDERICK E. BOLT, who is in active practice at Worcester, N. Y., has recently been appointed health officer of the adjoining town of Westford.

1907

DR. WILLIAM C. TREDER of Scotia, N. Y., has been elected coroner of Schenectady County. He will assume the duties of the office January 1, 1922. Dr. Treders served for two years as coroner's physician.

DR. ROY C. KEIGHER was elected president of the Medical Society of the County of Schenectady at the annual meeting of the Society held at the Mohawk Club, Tuesday, December 13, 1921.

Dr. Keigher served as vice-president of the Society last year and, at the semi-annual meeting held at Saratoga Lake, read a paper entitled, "Early Medical Men of Schenectady County," which was received with great interest by the Society and the public generally. Dr. Keigher has been urged to continue his research and extend the article for publication.

DR. WILLIAM D. COLLINS, health officer, Hudson, N. Y., has resigned his position as such to take effect January 1st. Dr. Collins has served six years as health officer of the City of Hudson, his last appointment being June 6, 1918. He has been a most efficient health officer and introduced many improvements that have been conducive to better public health conditions in the city.

DR. FLOYD J. ATWELL has been appointed health officer of Coopers-town, N. Y. Dr. Atwell has been acting health officer since the death of Dr. J. H. Moon (class 1872).

1908

DR. EARL W. FULLER (A.M.C., '08), formerly senior assistant physician at the Rome State Custodial Asylum, has been appointed psychiatrist to the New York State Hospital Commission, with headquarters in New York City. Dr. Fuller was elected to membership in the American Psychiatric Association at the meeting held in Boston in June, 1921.

1909

DR. CHARLES L. RUSSELL is in charge of the George Alder Blumer Research Laboratory at the State Hospital, Utica, N. Y. Dr. Russell entered the State Hospital service at Binghamton immediately after graduation, and after several years of clinical experience concentrated his efforts upon the laboratory side of his profession. The George Alder Blumer Research Laboratory was dedicated by appropriate ceremonies on June 3, 1921, having been named in honor of a former superintendent

of the Utica State Hospital. Older graduates of the Albany Medical College will recall Dr. Blumer's lectures on mental diseases, and the visits to the hospital where he entertained them during his incumbency.

At the dedicatory exercises, Dr. Charles G. Wagner, of the Binghamton State Hospital, thus referred to Dr. Russell: "I offer my congratulations likewise to the superintendent for securing the necessary funds to erect this splendid laboratory and I congratulate the commission on securing the services of such an able man as Dr. Russell to direct it. I know Dr. Russell—he was one of my assistants. He received part of his training in Binghamton and it is a matter of great pride that he is the man who is going to achieve great results in this laboratory."

1910

DR. JOHN A. FARRELL of Saranac Lake, N. Y., has been appointed health officer of the Town of Franklin, Franklin County, and will assume his duties at once.

DR. GEORGE W. DUFFY of Nassau, Columbia County, N. Y., has been appointed health officer of the new consolidated health district of the village and town of Nassau.

1916

DR. LEO R. TIGHE is medical interne at the Hudson River State Hospital, Poughkeepsie, N. Y.

1920

DR. ALBERT L. HAYES has been appointed medical interne at the Hudson River State Hospital, Poughkeepsie, N. Y.

ALBANY MEDICAL ANNALS

MILITARY MEDICINE AT THE ALBANY MEDICAL COLLEGE

DESCRIPTION OF THE RESERVE OFFICERS' TRAINING CORPS

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At the request of the Surgeon General of the Army, the faculty of the Albany Medical College approved during the summer of 1921 the establishment of a Reserve Officers' Training Unit, but it was not until October 25, 1921, that orders were issued directing me to report to the Dean for the establishment of this unit. As this is a new departure for Class A medical colleges a short discussion of its organization and purpose might be of interest.

For purpose of definition we may say that the Reserve Officers' Training Corps is a corps of students who during their college or professional courses are preparing themselves to quickly and efficiently serve their country in case of war.

We as a nation have had a comparatively small Regular Army, a large National Guard, but only since the world war have we begun the organization of a reserve force. The average American does what he has to do usually quickly and efficiently, and when necessary we have prepared ourselves for war with considerable speed, as was shown during the world war, but even with our known adaptability to

organize and equip an army, it takes a definite and considerable time to bring a force of men to the point where they are mentally and physically fit to enter battle, and the training of the commissioned personnel takes much longer and the greater portion of the training of officers must take place before the training of the soldier can begin.

History shows that each war we have had has been fought by a different body of men and the knowledge gained in each war has been forgotten prior to the next and everything must be learned over again, so it would be a national calamity if the knowledge gained in the world war should be entirely forgotten. It is through the R. O. T. C. movement that we hope to continue the training of our people along military lines and so not forget the lessons learned during the late war.

The great mass of this Corps will eventually be composed of the best men of our country, all college men, and as long as the people take an interest in the movement it will be an unending affair. As men grow old their places will be taken by young men just coming out of college. Who can say that a very effectual stop has not been made in the leakage of our military strength and yet it does not approach militarism, for every member of the Officers' Reserve Corps is a useful member of our civilian population, if not more useful because of his additional training and consequent broader view of his responsibility as a citizen.

It was not until the reorganization act of June 4, 1920, that the R. O. T. C. movement was extended to the professional colleges including medical colleges. At the present time we have twenty-five such units established at Class A medical colleges. At the line school the law requires that the student have at least five hours' instruction per week, but in the case of a medical student every course he takes to get his degree has a direct and definite military value, for the foundation of a good medical officer is a good doctor, so that the law has allowed ninety hours per year, and if this amount of time cannot be allowed to military courses, two-thirds credit can be given, making the minimum time of thirty hours during the school year and the attendance at

one camp for six weeks' duration during their four-year college career.

Now, having considered the R. O. T. C. in general, let us take up a little more in detail the way in which the idea is worked out. First I will take up briefly the work of the line units. The work for the four college years is divided up into a basic course during the freshman and sophomore years and the advanced course during the junior and senior years. The designation of these courses gives a good idea of their scope. The basic course is the same for all units, while the advanced course is divided definitely, according to the different arms of the service, into units for Infantry, Cavalry, Artillery, Signal Corps, etc. The summer camps are also divided into two types, one for students in their basic course and one for students enrolled in the advanced classes. In the camp the work is mostly practical, only very little classroom work being given. The students are organized into companies and live under military conditions. The camps give the necessary instructions to round out and complete the theoretical instruction given in college.

The work laid out for professional schools is similar to the line as it is divided into a basic and an advanced course but the character of the work differs markedly, however. During the school year only lectures, demonstrations and classroom exercises will be given there is not time for drills or field exercises. Nor are the members of medical units required to wear the uniform as are line units. The camps are similar to those of the line except that attendance at only one camp is required, no specific basic camp being given, and the year that the student attends is optional, either after his sophomore, junior or senior year, but one camp must be attended. The most desirable time, from the Surgeon General's standpoint, would be the camp after his sophomore year as his medical knowledge is such that he is able to thoroughly understand the professional work taught at the camp.

Last year was the first camp conducted for medical students. It was held at Carlisle, Pa., and students were in attendance from nearly all the states of the union. As

soon as a man arrives he is assigned to a company, equipped with uniforms, etc., and immediately begins his military training.

The training while in camp includes a certain number of lectures and quizzes on sanitation, camp and field, including water purification, disposal of wastes, etc., administration of Ambulance Company and Field Hospital, and practical work in Infantry and Medical Department drills, field maneuvers, practice marches, etc. or in other words, they carry on exactly as they would do if they were being organized to take the field in actual hostilities except they are not required to do kitchen police and fatigue duties. Last year, after their six weeks' training, they conducted a review under their own officers that was excellent. They also had a splendid track meet, many ball games, dances, etc., and finished the camp in a much better physical shape than they were before entering. This last in my opinion will do more for the medical student than anything else, for we all know the average medical student doesn't take as much exercise as he should and during his summer vacation he generally goes into some hospital and works, getting practically no exercise.

There is one phase of the R. O. T. C. which I haven't considered and which to the average medical student is of much importance, and that is the pay. There is no pay or commutation during the basic course, but during the advanced course of the junior and senior years the Government allows all students commutation of a ration. This amount of course varies with each year. At the present time it amounts to a little more than forty cents a day or about \$12.00 per month. The camp is also a source of no expense to the student. Transportation, sleeping-car fare and \$3.00 per day is allowed for meals from the school to the camp and return, or five cents a mile is allowed if the student so desires. While at camp the student is furnished everything—board, quarters, uniforms, shoes, underclothing, medical and dental attention—and they are paid \$1.00 per day, or the pay of a private in the army.

The expenses of this movement to the Government is

considerable, but in the case of hostilities it is believed that it would not be necessary to establish many officers' training camps, as there would be a considerable number of men who would have qualified at these different schools who could be ordered to join their units and after a few weeks' training would be able to take over their respective commands, and one month saved at such a time would be easily worth more to the nation than the cost of the R. O. T. C. for many years.

After completion of four years in a medical school, during which time he has attended the two years' basic military course, one summer camp of six weeks, and the two years of advanced military training, and has successfully graduated from the medical college, a student is eligible for a commission as a 1st Lieut. in the M. O. R. C. A student may attend the military courses in his school and the summer camp and be eligible for a commission but it is optional with him to accept the commission. Also, after he accepts his commission, he will not be called upon to attend camps, etc., except when the country is threatened with actual hostilities.

At the present time the Albany Medical College has fifty-seven students enrolled in the military course and some nineteen men have signified their desire to attend the summer camp next June which is to be held at Carlisle, Pa.

RATING LOSSES OF INDUSTRIAL VISION UNDER THE NEW YORK STATE COMPENSATION LAW

*Read at the Meeting of the New York State Society of Industrial Physicians
and Surgeons held at Syracuse, December 7, 1921*

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The New York State Compensation Law has been in operation for seven years. Many thousands of industrial accident cases have been adjudged under this law. The appellate courts have reviewed hundreds of contested decisions and awards and have made certain rulings which must govern the interpretation of various provisions of the law. Amendments have been enacted from time to time, ostensibly for the purpose of removing difficulties encountered in making awards; but—and I consider this point most significant—the principle which governs permanent disabilities has remained unchanged, and is essentially the same today as it was in 1914.

The principle which governs permanent disabilities caused by accidental injuries bears no *direct* relation to the damage done to the earning ability of the injured person in his particular vocation. A watchmaker is paid compensation for exactly the same number of weeks as an unskilled laborer, when both have suffered an equal reduction of vision. A violinist and a maker of fine instruments are paid for no longer period than a truck driver for the loss of an index finger. A man in a sedentary occupation gets pay for the same number of weeks, for the loss of use of a leg, as the man who has to climb telegraph posts or walk on elevated steel girders. The compensation is fixed for the limb and the organ which has been damaged permanently, regardless of the resulting occupational handicap the injured person has sustained. In other words there is no strict application of the economic principle as regards permanent physical impairments.

At the first glance the schedules for permanent losses and

impairments appear arbitrary. They did look so to me, I must confess, till I inquired into the matter further. I learned that while no exact justice was assured to each individual, there was an attempt made to provide for what is called *average* justice. The occupations covered by the law in this State include many in which a high degree of skill and corresponding physical efficiency are required, as well as those which make comparatively small demands upon either skill or physical soundness. The schedules incorporated in the law for the compensation of permanent impairments were calculated to represent the losses of earnings experienced by the industrial workers, taking a general average, so far as the State of New York is concerned. In a State where skilled labor predominates to a larger extent than in New York the schedules would have to be correspondingly more generous, if the same principle were applied; and, on the other hand, in a State where the proportion of unskilled labor is greater, the schedules would be correspondingly less generous.

This principle of *average* justice I should like to call, for greater convenience in my present paper, a general industrial principle, by way of distinguishing it from the more specifically economic principle which governs the compensation laws in most European countries and to some extent also in Canada and the State of California.

There are, in fact, three principles by which permanent losses may be rated:

There is, first, the purely *physical* principle by which the medical examiner determines the degree of damage done, regardless of general or specific economic depreciations.

Second, there is the *specifically economic* principle by which an injury is estimated according to reduction of earning ability, which the individual has suffered in consequence thereof in the pursuit of his chosen vocation.

Third, there is the intermediary *general industrial* principle which fixes the monetary value of normally functioning members and organs of the body as a general industrial asset and rates the sustained physical impairment according to established schedules.

As I shall deal in my present paper more particularly with the rating of permanent reductions of eyesight, and as the Law in the State of New York takes no account in this matter of the actual economic losses the injured individual must face in consequence of the physical damage, we shall be concerned here only with the first and third principles. In other words, we have to do here, on the one hand, with the determination of the actual physical impairment, which must be established by the medical examiner, and on the other hand, with the legal rating of such physical impairment which is primarily the responsibility of the referees of the State Industrial Board.

Unless we keep in mind these few simple facts, when we discuss particular phases of the Law and their proper interpretations, we are sure to become entangled in irritating, wasteful and fruitless controversies.

Medical men cannot be expected to be conversant with the Compensation Law, the various changes it has undergone, the court decisions regarding it, nor even the principles upon which it is established. Our particular care is to examine and diagnose accidental injuries and whatever consequences may have resulted from these, and then to report our findings and opinions to the officer or officers charged by the State with the making of awards under the Compensation Law. If we could be permitted to adhere strictly to these lines, and take no account of the legal aspects of the determination of compensation cases, we should be able to confine ourselves to giving straightforward statements of purely scientific findings and then leave the legal interpretation of these findings to the officer or officers whose business it is to administer the law.

The rough and ready way in which compensation cases are handled in practice has wiped out to some extent the lines of division of responsibility, which I have suggested. Experience shows that, as a matter of fact, the medical examiner is called upon quite frequently to give not only his scientific findings but to interpret them for the State in accordance with the existing law. That the law has fixed certain principles for such interpretation, which a medical

man cannot reasonably be expected to know, does not appear to have had proper consideration hitherto.

It is not my intention to have the line drawn too sharply. Reasonableness is all I plead for.

The question of what percentage of sight an eye has lost as a result, direct or indirect, of an accidental injury, is a case in point. All that the oculist, as such, ought to be expected to do is to determine technically the degree of purely physical impairment sustained, using the peculiar means at his command, and then report. Special training, professional practice and keeping step with new discoveries and developments in his particular field should attach to his findings a corresponding degree of authoritativeness.

On the other hand, if the oculist is required to go beyond the boundaries of his special field of ophthalmology and even outside of medicine, by being asked by a referee or the State Industrial Board, an employer or insurance carrier, to interpret his findings in accordance with the Compensation Law of the State of New York, it must be evident that he should know the legal provisions relating to the loss of use of an eye, as well as the decisions of the appellate courts which define how injuries of the eye shall be rated.

The surgeon who reports on the impairment of a finger by amputation is not required to interpret his medical findings in accordance with the Compensation Law. He tells what phalanx or phalanges have been cut off wholly or in part, and the referee decides on the basis of the surgeon's report what percentage of loss the amputation represents. A similar procedure ought to be possible as regards the determining of the percentage of vision lost by an injured eye. It is possible.

Let us take first the determination of the purely physical loss of vision experienced by a previously normal eye as result of an accidental injury. In the vast preponderance of cases this loss can be established by the ordinary Snellen tests which supply the most reliable and universally accepted scientific means for this purpose.

To be sure, the Snellen test applies only to central vision or central visual acuity. The fact remains nevertheless un-

contested that visual acuity is *the practical working vision*. It is the vision most frequently destroyed or reduced by industrial accidents.

The presence of perfect binocular vision need not be taken into account at all, as the law in the State of New York makes the impairment of it equivalent to the loss of use of one eye.

As regards the field of vision, or peripheral vision, we all know that an accurate estimate of its partial impairment is next to impossible, as a practical proposition. No two oculists would ever agree in their rulings. And mere assumptions are unscientific. As a matter of fact, traumatic impairments of peripheral vision by itself are so rare that it seems unjust to reduce the allowance for the ordinary eye injuries by suggesting that only one kind of sight has been affected. When there is an extremely rare case of destroyed peripheral vision, then is the time to take up this matter for special consideration.

The compensation for eye injuries is small at best, especially if we consider that the loss of vision is compensated not by its actual amount, but after the best correction by lenses which the eye will tolerate. As we are assured that the law aims at *average justice*, we must draw the only reasonable conclusion that payment on the basis of visual acuity was assured. This conclusion is confirmed, moreover, by decisions of the appellate courts.

Prior to July, 1917, the law made no provision for compensation for the permanent partial loss of the use of an eye. Since July, 1917, compensation for permanent partial impairments is provided for.

Furthermore, the percentage of loss of vision which should be considered equivalent to the loss of an eye was not fixed by the legislature until 1920, and the new provision did not go into effect till May 5th of that year.

It is well to bear these facts in mind in order that we may obtain a clearer understanding of the decisions rendered by the appellate courts in a number of contested compensation cases relating to total and partial losses of vision.

For example, on March 13, 1917, the Court of Appeals

ruled that eighty per cent loss of vision in an eye cannot be considered loss of use of that eye. I refer to the case of *Boscarino vs. Carfagno & Dragonette*, *Court of Appeals*, 220 N. Y., 323. The Court ruled in this case:

"If the claimant still has vision in the eye, which equals twenty per cent of normal, he is very far from having lost the use of the eye."

The Commission, after due inquiry, decided that eighty per cent loss of vision ought to be considered loss of use of an eye and placed its contention before the legislature of 1920. After public hearings on the question, the legislature added to the provision relating to loss of use of an eye, the following, which is in force at the present time:

"The loss of eighty per centum of the vision of the eye shall be considered to be the equivalent of the loss of the use of the eye and the loss of binocular vision shall be considered to be equivalent to the loss of use of one eye."

The question now arises, what is meant by a "loss of eighty per centum of the vision of the eye?"

Here again, unless we want to indulge in more or less fruitless speculation, we do best to consult first the ruling of the Court of Appeals, which deals with the law as it stands.

Reverting to the case of *Boscarino vs. Carfagno & Dragonette*, we find that the Commission which found the claimant to have sustained a loss of eighty per centum of vision had based its findings on the report of an examination made by Dr. Weeks, of New York City, one of the foremost ophthalmologists of the United States. Dr. Weeks reported as follows:

"Vision of right eye 20/100ths, not materially improved with glasses. . . . Field of vision normal in extent."

Dr. Weeks, as ophthalmologist, finds further that the reduction of central visual acuity to 20/100ths of normal represents a loss of eighty per centum of vision, and his finding is endorsed by the Industrial Commission and sustained by the Court of Appeals. What more can we ask?

It will be noticed that the reduction of working vision to 20/100ths is called eighty per centum loss of vision, despite the finding that "field of vision is normal in extent."

There does not appear to be a single case among the many eye cases passed upon by the appellate courts, in which any deduction is made for remaining field vision. Central visual acuity, or working vision, is uniformly called vision. Hence the answer to the question what is meant by eighty per cent loss of use of an eye, is 20 100ths. Incidentally, this indicates that the Snellen test has been accepted as the means for measuring vision.

Taking into account the court decisions, the Compensation Law declares in effect that industrial vision lies between 20 20ths and 20 100ths of normal, 20 20ths representing the minimum of normal working vision and 20 100ths the loss of use of an eye.

Now comes the mooted question how to rate permanent *partial* losses of vision occurring between 20 20ths and 20/100ths.

If we adhere closely to the lines laid down by ophthalmology we shall have no difficulty. All we should have to do would be to continue to rate 20 40ths of normal as implying a loss of fifty per cent of working vision, 20 80ths as a loss of seventy-five per cent, 20 100ths as a loss of eighty per cent, etc., and let those who administer the law do as they please with our ratings.

In the absence of a legal provision declaring how the permanent partial impairments of sight shall be rated, there is ample justification for adhering to the practice which obtained before 20 100ths was made to stand for industrial blindness.

Twenty-fortieths, scientifically speaking, means that central visual acuity, or working vision, has been reduced to one-half of normal. One-half means fifty per cent. There is no getting away from this proposition. Professor Fuchs, whose text-book is universally accepted as the ophthalmologists' bible, as well as Docent Carl Lindner, of the University of Vienna, both of whom I consulted in person in the matter, agree that 20 40ths represents fifty per cent of normal and also that it is scientifically indefensible to inject considerations of peripheral vision or any other factor, in an

attempt to minimize the loss of working vision represented by the formula $20/40$ ths.

The standard text-book on ophthalmology to which I have referred says definitely:

"If one eye sees an object of a given size at a given distance and a second eye sees the same object at twice the distance, then the visual acuity of the second eye is twice as great as that of the first."

In connection with this established scientific fact it may be interesting to quote an opinion of Dr. Weeks embodied in the Arcangelo case, where he says that "vision of $20/40$ ths at least is necessary to engage in the orderly vocation of life." I mention this merely to re-emphasize the manifest importance of $20/40$ ths, which some have tried to belittle to an inexcusable extent.

On the other hand, I concede that looking at the proposition from the standpoint of industrial efficiency, $20/40$ ths represents less than fifty per cent impairment of vision. This is especially apparent when we are called upon by the law to consider $20/100$ ths as equivalent to the loss of use of an eye. Twenty-fortieths would now have to be assigned a new rating if the formula is to be brought into harmony with the principle of industrial efficiency by which $20/100$ ths was declared to be equivalent to loss of use of an eye.

We now have two fixed points to deal with: $20/20$ ths as representing normal working vision and $20/100$ ths as representing industrial blindness. The distance between the two points marks the range ascribed to industrial vision. If the intention is that the permanent partial impairments anywhere between the two points shall be rated in accordance with the relation of these impairments to the more or less arbitrarily fixed point of industrial blindness, we shall have to depart from the purely physical standard of rating and proceed along a new line which may be called *industrial efficiency*.

This change becomes necessary because physical rating proceeds in constant relation to normality, while industrial rating takes account of losses in their relation to the point of blindness.

The latter point is of considerable practical importance and may explain why it is that physical rating and industrial rating of losses do not accord one with the other, generally speaking.

A reduction of vision from 20/20ths to 20/40ths represents a loss of fifty per cent of normal visual acuity. Industrially the same loss does not represent fifty per cent of the efficiency of the eye when taking into consideration that 20/100ths is to be considered total loss of use of an eye. In other words the physical losses up to and below 20/40ths do not represent a corresponding industrial depreciation. An intelligent friend who has followed my former discussions of this matter has put the point in this way: "Reckoning from normal sight, impairment of industrial efficiency of sight does not keep pace with loss of visual acuity but drags behind up to a certain point; after that point is reached the loss of industrially efficient sight travels faster than loss of visual acuity."

With a view to finding a solution of the problem of how to rate visual losses occurring between 20/20ths and 20/100ths in a manner to preserve the principle of average justice, from the standpoint of industrial efficiency, I prepared a table sometime ago. Arbitrary and mechanical as the table may appear, it does seem to assure an adequately fair rating. The point of industrial blindness having been fixed arbitrarily, the table itself must necessarily partake of the character of arbitrariness. The table is as follows:

Loss	Loss
20/25ths = $6\frac{1}{4}$ per cent	20/65ths = $56\frac{1}{4}$ per cent
20/30ths = $12\frac{1}{2}$ per cent	20/70ths = $62\frac{1}{2}$ per cent
20/35ths = $18\frac{3}{4}$ per cent	20/75ths = $68\frac{3}{4}$ per cent
20/40ths = 25 per cent	20/80ths = 75 per cent
20/45ths = $31\frac{1}{4}$ per cent	20/85ths = $81\frac{1}{4}$ per cent
20/50ths = $37\frac{1}{2}$ per cent	20/90ths = $87\frac{1}{2}$ per cent
20/55ths = $43\frac{3}{4}$ per cent	20/95ths = $93\frac{3}{4}$ per cent
20/60ths = 50 per cent	20/100ths = 100 per cent

It will be noticed that, despite its mechanical character, the table solves a problem which has troubled fair-minded men considerably, and that is how to compensate more

adequately the impairments in excess of what is physically a loss of the first fifty per cent of normal vision. Economically speaking, the loss of the first fifty per cent of working vision, implied by the formula 20/40ths, is not as serious as the losses beyond this point. In my table 20/40ths is rated as twenty-five per cent, leaving seventy-five per cent to be distributed for impairments beyond to 20/100ths. The more I study the table, the more I feel persuaded that it meets the requirements of simplicity, common sense and justice.

It is possible that there may be need of a legal provision defining how permanent partial losses of vision shall be prorated, if there should be any doubt whether my table answers the purpose. Such a provision would have to be supplied by legislative enactment.

Now that the present paper has come to a close, it may be proper that I should indicate, in a few words, what relation it bears to my two former papers dealing with the same subject.

In opening the question of how to rate partial impairments my insistence was upon the fact that the Snellen test supplies the only universally accepted scientific standard for determining percentages of working vision. Concentration upon this point appeared necessary in order to counteract current indefensible arguments tending to minimize reductions of working vision.

In my second paper, stress was laid on two principles on which visual impairments may be rated, to wit, the purely physical and the strictly economic principle. A "middle way" was suggested as a solution.

This "middle way" is more fully discussed in the present paper as meeting more directly the conditions to be considered when we deal with eye cases *under the New York State Compensation Law*.

The "middle way" suggests the principle of average industrial justice. This principle governs the legal provisions for permanent physical impairments. It is to this principle therefore that the rating of such impairments must conform.

MEASURING THE LOSS OF INDUSTRIAL VISION

*Read at the meeting of the New York State Society of Industrial Physicians
and Surgeons held at Syracuse, December 7, 1921*

BY A. N. SNELL, M. D.

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Ophthalmology has the reputation of being a nearly exact science, or at least the nearest approach to mathematical exactness of any of the associated branches of medicine. Yet if one contemplates or reads all that has recently been written on the subject of estimating, measuring or determining the percentage of vision he would be hopelessly confused because of the differences of opinion and misinformation.

The reason for this state of affairs is, as I see it, threefold:

First. A failure properly to comprehend the basic principles on which the scientific measurement of visual acuity is based.

Second. A confusion in the minds of many of the mathematical value of visual acuity as recorded by the familiar, usual, and accepted forms of expressing different degrees of visual acuity.

Third. An attempt by those who undertake to determine the measure of visual loss to take into consideration the different and varying economic factors as they apply to different individuals, different degrees of acquired skill, and different kinds of occupation.

I ask your attention to a brief consideration of these three fundamentals with the hope that we may remove some of the causes of confusion.

Standard Vision. The measurement of visual acuity is based on the smallest object that the average healthy eye can see; or, specifically, the *minimum separable* of two points or lines, and the smallest object, character, or letter that can be differentiated or characterized by the average healthy eye. This was found by Snellen to be an object or letter of five minutes, whose component parts were one minute in size. Thus Professor Snellen established as a standard for visual acuity, which standard has been accepted

ever since, an object whose limbs or component parts each subtend an angle of one minute and which in its entirety subtends an angle of five minutes. For example, the test-letter *E* is so constructed that each limb or element of the letter subtends an angle of one minute and the entire letter five minutes. This gives us the standard for measurement of best average visual acuity. In making the test it makes no difference at what distance the test-letter is placed, only that it must always subtend an angle of five minutes. *All* the Snellen letters that are in common use for testing vision, the 20-, 30-, 40-, 60-, 100-, 200-foot letters, all subtend a five-minute angle at the distance recorded.

Now in making the test of vision the usual distance chosen is twenty feet. All other letters are placed at the same distance, and visual acuity recorded as (a) 20/20, (b) 20/40, (c) 20/60, (d) 20/100, etc. This means that (a), a five-minute angle letter at twenty feet, is seen at twenty feet; (b), a five-minute letter at forty feet, is just seen at twenty feet; (c), a five-minute letter at sixty feet, is just seen at twenty feet, etc. The formula or expression 20/40 is not a common fraction and has never been regarded as a mathematical expression by the profession. In the expression or formula for expressing visual acuity, the numerator simply shows the distance at which the test is made and the denominator simply shows the distance at which the recorded letter subtends an angle of five minutes. Let me quote from an article by Dr. Green in the *Transactions of the American Ophthalmological Society*, Vol. X, p. 651:

"Snellen's formula, $V = \frac{d}{D}$, considered apart from any particular series of optotypes, signifies nothing more than that *D* is the smallest size of letter recognized and correctly named at a distance designated by *d*. As employed by its author, it expresses also the fact of such a relation of *D* to *d* that when $D = d$ the height of the letter subtends a visual angle of five minutes, and the width of each of its component lines subtends an angle of one minute. In its actual form it is the complete expression of an observed fact, which is not the case when it is reduced to lower terms as, for

instance, to the form of a fraction in which the numerator is taken as unity—or to decimal notation."

The Mathematical Value of Visual Acuity as Commonly Expressed. Please note again the last paragraph quoted above, as this leads us to my second point, that in the minds of some people there is a disquieting confusion in regard to the mathematical value of this common form of expressing visual acuity. They reduce a non-mathematical, observed fact to a common decimal, then attempt to draw a mathematical conclusion therefrom. Those who thus regard a recorded vision of 20 40 as $\frac{1}{2}$ have failed to comprehend the fundamentals of the Snellen formula. Neither have they read or understood the report of the committee of the American Ophthalmological Society of 1903 (*See Transactions of the American Ophthalmological Society, Vol. X, p. 192*), which reads: "The expression $V = \frac{d}{D}$ is to be taken

in the sense that the letters designated by D are the smallest correctly named at the distance d . For this reason (following Snellen) *the fractional expression should not be reduced either to lower terms or to the decimal form.*" The expression should not be reduced to any form of fraction because it is not a fraction. If you do so reduce it, the meaning is completely lost and destroyed, and you are led into grave mistakes. Let me quote Dr. Green again (*Transactions of the American Ophthalmological Society, 1905, Vol. X, p. 650*):

"All systems of notation in which the acuity of vision (S-Sehscharfe, or V-visus) is estimated in terms of a unit assumed to represent normal vision are open to criticism, in that they invite, or at least suggest, erroneous interpretation. Thus, a finding recorded in the form, $\frac{V=d}{2d}$, when reduced to its arithmetical equivalent, $V = \frac{1}{2}$ or $V = 0.5$, is not infrequently loosely construed as justifying the statement that vision is only one-half, or has fallen off to one-half of the normal, and expert testimony embodying such erroneous and misleading evaluation is almost sure to be brought forward whenever a case of alleged impairment of sight is carried into a court of law for adjudication."

I am placing some emphasis on this quotation, the paragraph being written in 1905, as a well-known writer makes the statement that "The proposition that 20/40ths means loss of fifty per cent of normal visual acuity, or working vision, was *accepted universally* as final until insurance carriers had to pay for percentages of such reduction, by the operation of compensation laws, when efforts naturally began to be made to minimize the percentages of partial impairments of sight, by urging the suggestion that visual acuity is only one factor of vision."

The fact that most of the compensation laws were written after 1910, and the article by Dr. Green was written in 1905, should at least convince reasonable men that the writer, Dr. Green, was not greatly influenced by the insurance carriers.

From the State of Wisconsin there is a recent expression of the percentage value of vision, which was given by a report of a committee of the Milwaukee Oto-Ophthalmic Society. The Compensation Commission of that state had written for an expression of opinion and in reply to this letter a report was submitted, of which the following is a part: "The society was unanimous in stating that the vision which is 20/40 on reading a certain line of Snellen type, does not represent vision which is one-half of total blindness. . . . It is found that we all agree that what we record as 20/40 vision does not represent one half either of normal vision or of total blindness. In the Milwaukee table 20/40 vision represents ninety-four per cent of vision or a six per cent loss of vision."

In most of the articles and in some of the court decisions there is much of "Thou shall not," but very little of the positive. Let us now consider the constructive side. On what data can one determine a percentage of vision, or at least of visual acuity? We have the standard for maximum acuity—that of the five-minute angle. What is the minimum angle for useful vision? This has been, and still is the point in dispute. We find that a person has usually been considered totally blind when he cannot count fingers at one foot. Vision has been variously estimated by different

authorities as of no use in following a manual occupation when it reaches 5 200, 10 250, 20 320, 20 250. There is no authority who says that a person with a visual acuity of 20/200 can not do any kind of work. (I have a patient with 10 200 vision in one eye only, the other being lost, who has operated a passenger elevator in a large office building for six years.) I find that there is an almost unanimous opinion that a recorded vision of 20 200 represents, approximately, a reduction of visual acuity to ten per cent. It certainly represents a serious loss of vision to one who must earn a living by the aid of his sight.

Beginning with these two extremes a percentage table of visual acuity may be constructed, which gives the percentage of visual acuity for each recorded measurement:

Visual Acuity as Recorded at 6 Meters	Visual Acuity as Recorded at 20 Feet	Height of Letter in Cm. at 20 Feet	Visual Angle at 20 Feet in Minutes	Visual Acuity in Percentage
6 6	20/20	0.891	5.0	100
6 9	20/30	1.337	7.5	95
6 12	20/40	1.783	10	90
6 15	20/50	2.229	12.5	85
6 18	20/60	2.675	15	80
	20/70	3.121	17.5	75
6 24	20/80	3.567	20	70
	20 90	4.012	22.5	65
6 30	20/100	4.458	25	60
	20 110	4.900	27.5	55
6 36	20 120	5.349	30	50
	20 130	5.791	32.5	45
6 42	20 140	6.237	35	40
	20/150	6.682	37.5	35
6 48	20 160	7.128	40	30
	20/170	7.573	42.5	25
6 54	20 180	8.019	45	20
	20/190	8.464	47.5	15
6 60	20/200	8.917	50	10
	20 210	9.355	52.5	5
6/66	20/220	9.801	55	0

In the foregoing table, beginning with the test-letter of five-minute angle (standard visual acuity) the letters are each increased in size two and one-half minutes until a letter of fifty-five minutes is reached. This establishes the 20,200 letter as 1/10 vision, which is its true mathematical value, established by the consensus of authoritative opinion and which satisfies all reasonable deductions (the value is not obtained by reducing 20/200 to a common fraction). The two and one-half minute increase in the visual angle of each test-letter at twenty feet corresponds exactly to the size of the test-letter with a ten-foot increase in distance. The table gives the usual form of expressing visual acuity in meters or in feet, the corresponding size of the letter, visual angle, and percentage of visual acuity. This is the table proposed by the committee of the A.M.A. for the mathematical measurement of visual acuity.

Economic Factors. Analyzing the third point, I find that much confusion and misunderstanding have arisen from the fact that there is a prevalent habit or tendency on the part of the examining oculist to take into consideration all the various economic factors relating to the individual who has received an ocular injury, as these may affect or influence the earning ability of the injured.

This practice of considering the economic factor should be abandoned by the oculist and the question of how much a certain known amount of loss of vision may possibly affect the earning ability should be left to the judgment of the court or commission. If this method of procedure were followed there would be practically no opportunity for disagreement among oculists. A loss of visual acuity can be and is measured by accurate mathematical principles, and is therefore a definite amount, as shown by the above table; but the measure of a possible loss to any individual's earning ability is a very complex affair and therefore indefinite and flexible. It would seem that for this very reason the compensation laws of most of the states definitely specify the rates of compensation.

An attempt to compensate on the basis of actual loss to earning ability would greatly complicate the administration of the law.

I would refer those who are interested in a system of compensation based on the loss to earning ability to the system of Dr. Holt (*American Encyclopedia of Ophthalmology*, Vol. XVIII, p. 13595). This system takes into consideration the competing ability as an essential factor in determining earning ability and its economic loss. This system is not applicable in the administration of the compensation laws of most of the states, as it does not determine a percentage loss of visual function alone.

A review of the statutes of all the states in the United States having laws relating to compensation for ocular injury, reveals the fact that the award for such compensation, with a few exceptions, is based on the partial or the complete *loss of vision*, or a loss of use, and not on the loss to the *earning ability* of the injured individual. Therefore, in determining the compensation due any individual, the primal, fundamental, and essential factor to be determined by the examining oculist is the amount or degree of loss to the function of vision, or the percentage loss of vision, resulting from any eye injury.

In the compensation law of nearly every state the amount of compensation for the partial or for total loss of one eye, or of both eyes, is definitely fixed at a definite number of weeks or of dollars, or of both, in proportion to the actual earnings of the individual prior to the injury. In no instance does the law of any state contemplate or provide for a total compensation for the entire incapacity, or for the entire amount of loss to earnings due to either partial or to permanent disability. The injured, in all cases, must bear some part of the loss to earnings. In New York State compensation is based in general on the proportion of sixty-six and two-thirds per cent of the earned wages for the year previous to injury, the number of weeks of compensation being specified. In some states it is sixty per cent, in some fifty per cent. Thus, the earning ability is definitely established. So also is the rate of loss of compensation for the injury.

In all the statutes provision is made for the establishment of courts, boards, or commissions, whose function it is to

determine and to award the proper and just compensation due the injured individual, in accordance with the terms and conditions specified and provided in the statute. Thus, it is the function and duty of those administering the law to determine for that particular individual, who has suffered an eye injury, the monetary award justly due and established by the specific terms of the law; and it is the *sole concern* of the examining oculist to determine the amount of loss to *visual function*. It is not the function of the oculist to estimate how much more serious an eye injury, with a reduction of visual acuity to 20/40 or 20/60, is to a watchmaker than it is to a day laborer. That is none of his business. Any degree of visual loss does more seriously interfere with the earning ability of the former than of the latter but each injured person having the same reduction in vision should be so reported by the examining oculist, and then it is the function of the awarding court to use the vested discretion, when there is any, in making any difference in the award. Most of the compensation laws do not make any differentiation between the skilled and the unskilled.

The partial or the complete loss of visual function (the percentage loss of vision) can be measured or determined in accordance with accurate mathematical principles, as I have shown, but the loss to the earning ability cannot be so accurately reduced to mathematical formula, because that takes into consideration the peculiar individual differences of education, occupation, competition, etc.

The New York statute does not require an estimation of earning ability or the economic loss thereto due to ocular injury; therefore the sole function of the examining oculist in making a report of visual damage is to determine the percentage loss of vision.

VINCENT'S ANGINA

*Read at Meeting of Cohoes Medical Society, December 8, 1921, and at
Meeting of the Medical Society of the County of Rensselaer,
December, 13, 1921*

By JOHN D. CARROLL, M. D.

Troy, N. Y.

Vincent's angina is an infection which may attack the tonsils, mucous membrane of the pharynx, buccal and gingival mucous membranes or even the mucous membrane of the larynx, trachea and bronchi.

The direct cause of this infection is the spirillum of Vincent associated with the bacillus fusiformis, and it is still a question whether these two organisms are distinct and separate entities living in symbiosis, or, as most men now consider them, as one and the same organism in different stages of development.

Though I have been unable to find corroborative evidence in any books or writings upon this subject, I always consider and look for factors which seem to me to be contributing or associative factors in this infection and, in many cases, I have found that these harbors of infection must be cleared up before the Vincent's infection will subside. In many cases, pyorrhea alveolaris is associated with dentigerous cysts or pus sockets at roots of teeth. In other cases infected sinuses, such as ethmoid, frontal or maxillary, have been discovered and, in all severe cases where any of the above associated infections were discovered, never did the Vincent's infection subside until the associated infection had been cleared up first. It also may be associated with diphtheria, lues, streptococcus or staphylococcus infections and with dental involvement with bacillus ramosus and the entamoeba buccalis.

There are two distinct types of this infection: one, the diphtheroid or membranous type; the other and more severe, the ulcerative type. In the membranous form, the membrane can be easily removed but soon there is recurrence. In the ulcerative type, the exudate does not seem to agglutinate so readily, hence loses its membranous qualifications, and as the exudate is cleansed away, erosions and ulcerations of various proportions and depths may be found,

extending not only through the mucous membrane but in many cases through the submucous tissues, fasciæ and even into muscular tissues. When a case goes on to ulceration or, even in the simple or membranous type, is of long duration, it is not uncommon to find involvement of the submaxillary or cervical lymph glands. There seems to be no set rule as to whether or not the infection is to progress from the membranous to the ulcerative form. I have seen a case in which the membrane covered both tonsils, practically all the mucous membrane of the pharynx, cheeks and lips, with only a few islands of apparently normal tissues left, before any ulceration began, while in other cases, ulcerations followed soon after discovery of small patches of the membranous condition.

The symptoms vary in number and severity, in accordance with the type and severity of the infection. In general, as one author states, they may be those of a subacute pharyngitis. In the membranous type the symptoms are usually mild and in some cases so slight that they are unrecognizable until by some accident the process is discovered. There may be slight dryness of the throat, headache, lassitude, general malaise, foul breath and slight salivation. In extensive involvements of the membranous as well as in the ulcerative forms, the above symptoms are more marked, the temperature elevated to varying degrees up to 102.5 or 103, extremely foul breath when sloughing ulcers are present, marked salivation, throat painful when swallowing, impaired phonation, generally swelling of the submaxillary glands and frequently cervical adenitis.

The diagnosis is readily made by the assistance of the microscope, but clinically I feel that in most cases, uncomplicated by mixed infections, a diagnosis can be made and our minds put at rest whilst awaiting laboratory corroboration. The exudative membrane in these cases is of pearly white color, with abrupt thickened edges and is readily removed, leaving the mucous membrane beneath nearly normal in appearance, or, if the ulcerative type, leaving erosions or ulcerations beneath. The surrounding tissue does not give the appearance of involvement, having an apparently normal appearance and is not abnormally injected as in other conditions. In diphtheria, the membrane

is grayish or dirty-gray in appearance, is very tenacious and, if removed, usually tears or breaks and leaves minute bleeding points behind. The contour of the patch is usually irregular in outline and the surrounding tissues present an angry red appearance. Streptococcic sore throat has a membrane, if coalescence of the points of exudate takes place, which in appearance more closely resembles Vincent's, but the surrounding tissues have the raw red appearance and the general symptoms of the patient are much more marked, temperature much higher, pulse rapid, sometimes even prostration. The difficulties in clinical diagnosis appear when a mixed infection is present and then whilst the physician may have his ideas, he must rely upon the laboratory findings. Hence for absolute and confirmed diagnoses always take a smear and a culture. If the condition is Vincent's angina the smear is the diagnostic aid because the spirillum and fusiform bacillus are readily stained with Loeffler's methylene blue, gentian violet or carbol fuchsin. The culture will not only rule out diphtheria but also the preponderance of any other organism such as the streptococcus or staphylococcus pyogenes.

The prognosis, where there is no mixed infection present, is good. When the infection is of limited involvement and membranous type, the condition usually abates in three or four days although the redness persists many days. If the involvement is very extensive or is ulcerative in type, it may take weeks or months to clear the condition.

The complications are those which follow mixed infections and are those of other acute infections, such as extension to the nasal cavity and sinuses, through the Eustachian tubes to the middle ears with acute suppurative otitis media, meningitis, etc.

Fatal cases have been reported. Held reported a case in which extension of infection took place, causing otitis media suppurativa acuta, meningitis and death. H. W. Bruce reported a case with extension downward into the larynx and trachea, the patient dying on the sixteenth day of the disease, with sloughing in fauces, pharynx, larynx and trachea.

The treatment of these cases varies somewhat with the extensiveness of the infection, but in many cases radical

treatment must sometimes be used to eliminate the infection. Gleason, in a recent edition of his book on ear, nose and throat, gives in detail some treatment as follows: Cleanse the infected parts thoroughly, then apply directly, a five per cent salvarsan in glycerin solution, paying especial attention to the floor of the ulcerations, then cover them with an antiseptic powder such as orthoform, or a combination of iodoform, gr. xxx, tannic acid, gr. xx and bismuth subnitrate, 3i. M. He also claims the spirilli are very sensitive to arsenic, hence advises salvarsan and neo-salvarsan intravenously, though the local treatment will usually suffice. For local applications he also advises use of Fowler's solution. Another method he mentions is daily applications with silver nitrate (twelve per cent) and follow by application of one per cent methylene blue. In mild cases where no ulcerations, daily applications with two per cent to four per cent silver nitrate will usually suffice. Personally, I can not agree in the efficacy of all of the treatment which Gleason seems to advocate. With regard to salvarsan, while I have never applied such solutions locally, I have supervised the treatment in a series of cases using salvarsan or neo-arsphenamine injections, and saw no effect on the infected areas whether the case was a mild or severe one. Dichloramin-T was advocated strongly by some men, but after weeks of trial with such solutions as spray and local applications, I saw no beneficial results. Silver nitrate however was and is the most beneficial remedy when properly used. Cleanse away or withdraw with forceps the membranous exudate, then apply the silver solution directly to the parts involved. In mild cases one to five per cent solutions will suffice, but if the process seems extending or non-yielding, ten per cent silver nitrate or even stronger should be used, making the application daily. The patient in the meantime should be given a mild astringent gargle or mouth wash to be used three or four times a day. There is a point to be remembered in applying silver nitrate. Silver is a caustic agent and no excess should be on the applicator, care also being taken not to saturate or touch the surrounding tissues. I have also found in very extensive lesions that tincture of iodine applied to the outlines of the process seems beneficial in preventing extension to contiguous parts.

EDITORIAL

A smith, reply'd I, when he falls sick, thinks it fit to take from the physician some potion, to throw off his disease or purge it downwards, or by means of caustic or amputation to get quit of the trouble; but if any one prescribe for him a long regimen, putting caps on his head, and other such things, he quickly tells him that he hath not leisure to lye sick, nor doth it avail him to live in this manner, attentive to his trouble and negligent of his proper work; and so, bidding such a physician farewell, he returns to his ordinary diet, and, if he recovers his health, he continues to manage his own affairs; but if his body be not able to support, he dies, and is freed from troubles.

The Republic of PLATO.

* * * *

Industrial Medicine The sudden rise of industrial medicine into prominence is an incident worthy of greater than passing attention, and promises to effect certain very definite results in the general practice of both medicine and surgery. Five or six years ago the phrase was practically unknown, and readers of the ANNALS may recall the interesting remarks of Dr. Shattuck at the Alumni dinner of 1917, when he was kind enough to come from Boston to tell about the inauguration of the new department at Harvard. At that time the corporations did not hold quite the viewpoint which has since developed, but were not altogether unwilling to listen and to co-operate tentatively to a plan which might prove advantageous. The evolution of the succeeding few years is really one of the surprising events of the progress of a science which is by no means wanting in novelties. The real value of the work now being done and in promise is well shown in the instructive paper by Dr. Glen Smith, published in the January ANNALS, which well bears perusal, study and reflection. At first thought experience in the accidents, diseases and incidents of employees in corporations would seem to suggest merely local and prompt provision of measures of relief, but a second glance shows how far-reaching may be the results of this

intensely practical department of medicine. The world war seemed to settle conclusively the public value of health, and the lesson has been taught that effectiveness and health are synonymous terms. Perhaps the crests of our departments of health may soon surmount a motto, such as, for instance, "*Sanitas populi, salus civitatis*," and this emblazoning may be adopted as the symbol of all successful endeavor, especially such as is established upon the basis of the labor of large corporate institutions. And, as often happens upon the close scrutiny of a principle, the benefits are not always reaped at the expense of the evils. Under the old plan, any physical or mental defect precluded the possibility of employment, while, with the adoption of standards of efficiency and of partial crippling, many may find employment suited to their resources, who have been ruthlessly discarded in the past. As Dr. Smith pointed out, percentages of normal vision do not disqualify when accurate vision is not needed; nor does the absence of a limb preclude employment to which the lacking member is not necessary. This is all very interesting and points to a brighter day for labor and a much better adjustment of the relation of labor with capital.

But there is a further and even greater good to be evolved from this intimate relation of medicine with industry, which has not yet had the emphasis it is destined to receive, and that is the salvation or restoration of some clinical methods of the past which have been too readily subjugated to the theories or experiments of the laboratory. We believe it will be seen, as the experiences of the industrial physicians are revealed in the series of articles running in the *ANNALS*, that gross methods of diagnosis are still of value, and that some of the ills of the human race are still discoverable without recourse to the micrometer scale or the milligram weight.

It is not beyond the mark to expect that from this new field will be evolved clinicians even more highly trained than have yet been found, for there is now not only demand for accurate diagnosis and treatment but a forecast as to the limitations of effort and efficiency, which inject an additional factor into the practice of medicine.

MEDICINE

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INDUSTRIAL MEDICINE

AGITATION FOR FREE CHOICE OF PHYSICIAN IN NEW YORK AND WHAT IT LEADS TO

The following article is offered for publication by Mr. Oliver G. Browne, Assistant Secretary of the Self Insurers Association, and although it will appear in some instances to be rather harsh in its attitude towards the medical profession, nevertheless it is an expression of opinion arising out of the present agitation for "Free Choice of Physicians" and it is thought advisable for that reason to publish it since it is only fitting and proper that all the doctors should be familiar with both sides of the question.

D. GLEN SMITH.

Medical service, under Workmen's Compensation, is

First. An obligation of the employer.

Second. A right of the employee.

The Employer is interested economically in getting injured men back to production, thereby saving wasteful

(a) Compensation payments.

(b) Labor turnover.

(c) Burdens on the community.

(d) Incidental expenses imposed by law.

Surely no employer is interested in either cheap or incompetent medical attention, for it is an unsound program.

The Employee is interested in being restored to economic production because while laid up he loses

(a) The waiting period.

(b) The earnings in excess of compensation.

(c) The expenses naturally incidental to removal from regular activities.

He wishes speedy restoration to health and strength because he suffers the pains and burdens of injury and the mental anguish which accompanies the *uncertainty* of such enforced idleness.

It will be seen that although the approach to these separate interests is slightly different, their real interest is jointly economic for what they both want is restoration to industrial usefulness.

How does the doctor figure in this problem? How did the law provide for him? It may be answered he does not figure except collaterally and the law makes no provision. He is not a party to it any more than is the

undertaker, the lawyer, the claim adjuster, or any other class of people who might be mentioned. By no stretch of the imagination can it be said that the Legislature had in mind granting any special favors to the medical profession.

The Legislature did have in mind, according to judicial interpretation of the Compensation Law, the economic relief of certain classes of injured employees and their dependents who were becoming burdens on the community due to the increasing number of cases in which there was no remedy at law to afford them maintenance. This was in response to and grew out of the principle that industry should bear the burden of its human losses.

But there was no condition of the medical profession requiring legislative relief. There was a great deal said about the lawyers getting large fees for their services which was thought to be an evil and the Legislature proceeded to remove all possibility of that.

The enactment of the medical section did give the doctors a privilege they had not previously enjoyed, in that it assured them their pay when properly employed, but this was only because of and depended upon the theory previously indicated, that the industry should bear the reasonable expense incidental to its human loss, and it was not intended for any special consideration to them. It made secure that which was formerly insecure but it granted a like privilege to others interested, such as the undertakers and the lawyers, but while this may be said to be indirectly a recognition of the principle that a "laborer is worthy of his hire," always behind it is the sole object of relieving the injured workman and his dependents from an expense it is well known he is unable to bear.

Now the medical profession, or those in control of the societies, have perceived an advantage to them in the medical section of the law, but which does not quite suit them, and they desire to have it changed to suit. They complain that the law does not insure them the right to free competition for the business and guarantee them their pay. That is the meat of all their complaint.

Now let it be understood clearly that the law at the present time provides and has at all times provided for absolute free choice of physicians so far as the injured man is concerned. Furthermore, to get the *business* there is the fullest and freest competition permitted by the law. It is just as free as ever. There is no change in this made by the Compensation Law. But this competition is based on ability and merit and not on intrigue.

But where the injured man selects his physician without the consent of the employer, there is no guarantee of pay by the employer unless the employer neglects to furnish competent or adequate medical attention.

Therefore the law recognizes all the economic interests of the employer and at the same time guarantees competent and adequate service to the injured man. Nothing could be fairer.

There is a natural tendency to develop a specialized surgery in congested centres that is extremely valuable to the two parties vitally inter-

ested in the Compensation Law, the employer and the injured man. This development started with skilled surgeons and is now plus their experience in this work. The law which we know as the "survival of the fittest" operates to gravitate this business to such men because it is to the employer's interest to select such men.

In the past seven years during which the Compensation Law has been operating, and during which this tendency toward specialization has slowly grown, many innocents have suffered through unskilled service. But thanks to this development the incompetent service is now confined to the exceptional which through ignorance or chicanery reaches the practitioner who should not have it.

Are we now to cast this experience into the discard and throw away the stimulant that has built up and sustained the splendid service that is now possible for our injured men?

Anything that is short of the choice of the physician by the employer as at present will have very dangerous results.

It would greatly increase the expense to the employer and to the state on account of additional cost of

(a) Restoration.

(b) Exorbitant bills impossible to combat.

(c) Necessity of the employment of an examining physician to keep watch of cases in hands of the various doctors.

(d) Increased overhead caused by the employer being completely out of touch with every case as even his physician would be barred in many instances from seeing an injured man.

(e) In view of this lack of contact the present scheme of direct and prompt payments would be impossible. Distrust and suspicion would be fostered and nearly every case would be controverted.

(f) Throw on the Industrial Board and the machinery of the Industrial Commissioner all the burdens and evils of a bill collecting agency.

The injured man would get no benefit from the change because

(a) No argument that improved treatment would result can be advanced in favor of it.

(b) It would not improve the standard of the medical profession. On the contrary, it would arrest the development of the specialized service now so splendidly functioning.

(c) It would not lessen but would foster quackery and the injured men would become the subject of all sorts of absurd treatments at the expense of the employer.

(d) It would offer him as the subject for uncontrollable exploitation by unscrupulous practitioners for there would be no incentive to prompt restoration to usefulness and health.

It would build up medical groups, whose business would be controlled by Labor Union representatives, which would be established at convenient and necessary centres. These groups naturally would be controlled by and entirely subservient to the labor leaders, as their influence would make or unmake them.

Imagine trying to controvert a claim under such circumstances. If any of these doctors should swear adversely to the contentions of these men, they would be immediately ostracized. The labor men have already seen the advantage of having the union select a legal specialist to handle their matters and will establish a similar service medically. There is no real objection to their employing an examiner under the present law if they wish, but they do not wish to do this until it can be arranged so that the employer will pay the expense.

Then other medical groups or "services" would be built up, depending not on getting business from an employer or a labor union, but upon intrigue or sociability or politics, as the opportunity might offer. The so-called lodge doctor or group contract physician would be in evidence — securing to workmen and their families *cheap* medical service but depending largely on securing injury *business* thereby and recouping from employers. Imagine the position of an honest employer or a worthy employee whose interest is committed to such men.

EFFECT ON MEDICAL PROFESSION

Here and there in the medical profession is to be found a doctor displeased with present conditions. He is usually one not receiving the amount of compensation work he would like or perchance some insurance carrier or employer has disputed his bill, and more than likely solely through misunderstanding. This hardly seems sufficient justification to overthrow the present satisfactory law, but the movement seems to be based on nothing else. Unfortunately the medical societies, because of dissatisfaction of a few, are with the Labor Unions in seeking a change. But they cannot know what they are bargaining for. Undoubtedly a redistribution of the work so that the family physician will retain his patients is expected. That is probably the real reason behind this part of the movement. But that will not be the result with the exception of scattering instances. The net result will surely be a redistribution but it will be accomplished by the removal of the great bulk of the work now reaching competent specialists to the hands of the "labor medical groups" who, for the most part, would be made up of men of indifferent capabilities. This is so because no really high class man would enter such a group or render himself amenable to the discipline the position would entail.

Even under the present law there have grown up groups here and there which attempt to dominate the medical work among certain classes of workmen. In some cases they have forced the employers to select them and they are playing both sides, whichever promises the greater return. The only thing that holds these men down is the fact that their bills are not guaranteed by the law.

The removal of the present safeguard, selection by the employer actuated by his economic interest, would generate a situation that will cast the evils of ambulance chasing into the shade. It will exchange the competition of fine professional pride of accomplishment for intrigue and cause the medical profession to take a long step backward.

It is surprising that the medical societies with their splendid traditions and fine ethical standards should foster such a program. It seems certain that the situation could not have been thoroughly canvassed to ascertain just what conditions would be fostered and that a careful consideration of the inevitable result will force them to the conclusion that the proposal is ill-founded in judgment and not for the best interest of humanity in general which is after all the real consideration.

OLIVER G. BROWNE.

APPELLATE DIVISION DECISIONS

By DR. A. N. CROUCH

Medical Director of American Locomotive Co., Schenectady, N. Y.

FRANCIS KNIGHT VS. L. FERGUSON

The claimant sustained an injury which consisted of a fractured cervical vertebra and injury to the posterior thoracic nerve. This nerve supplies the serratus magnus muscle and causes a restriction in the upward movement of the arms. The claimant is able to raise his arms only to the horizontal lines. After being paid disability compensation for a time and reduced earning compensation for another period, the commission rescinded all former awards and replaced them by one for forty per cent loss of use of each arm.

The Appellate Division held that since there was no actual injury to the arms the above award was not within the intention of the case but that the matter should be decided within the meaning of Section 15, Subdivision 3, other cases and compensation should be paid only for loss of earning power fairly traceable to the accident.

HILDA DOBSON JEFFERY VS. TRAVELERS INS. CO.

The claimant, who was the employee of a photographer, was compelled to undergo an operation whereby she lost the small finger of the left hand. In the course of her employment it was necessary to dip her hand into a poisonous chemical solution more than five hundred times a day. After performing this work for more than a week her fingers became red and swollen. Eventually the end of the little finger became mummified, gangrene set in and the finger was amputated.

The pathological cause of her injuries was the contracting of the blood vessels of the fingers through the action of the chemical solution.

The court held that there was no accident, first, because the contact made by the claimant with the solution was voluntary and intentional and, secondly, because the injuries resulted from no occurrence which is referable to any particular moment of time.

The word "accident" is defined as an event which takes place without one's foresight or expectation: an event that proceeds from an unknown cause and therefore not expected.

The claim was dismissed on the ground that there had been no accidental injury.

ANATOMY

Edited by WESLEY M. BALDWIN, M. D.

DEFECTS PRODUCED BY X-RAY ACTING UPON FROGS' EGGS IN EARLY DEVELOPMENTAL STAGES

The experimenter labors under a great handicap in a study of the artificial production of developmental defects because of the paucity of our information regarding the chemical and physical ontogenetic processes of the embryo. It is not only possible but extremely probable that both of the proanlagen constituents, enzymatic and nutritive, which immediately anticipate the known morphologic features of differentiation, are involved in the chemical reaction brought about through the influence of X-ray energy. The absorption capacity of tissues for this form of energy depends, however, upon two factors: one the mitotic activity of the blastomeres and the other the nature of their chemical composition.

It is a significant fact that the atomic weight of the chemical elements entering into protoplasmic structure forms the basis for an estimation of their absorption degree for X-ray energy, independent apparently of the nature of the compounds into which these elements enter. Such elements as calcium, sodium, potassium, and magnesium possess, therefore, a higher absorption capacity than is demonstrated by hydrogen, carbon, nitrogen, or oxygen. It is interesting to note parenthetically that these heavier elements are not taken up to any very great degree during the early developmental stages of the embryo but are present from the first. With the amount of energy utilized remaining constant, the quantitative chemical alterations produced in the embryos should be the same regardless of the developmental stage at which the experiment was conducted, assuming that a due correction is made for differences in mitotic rate of the constituent blastomeres. On the other hand, one would not anticipate a complete uniformity of abnormality either in the gross or the microscopic picture presented by the embryos, because of the possibility of a segregation of chemical substances during the later developmental stages. Experiments conducted with a physical agent so readily and constantly controlled as X-ray energy are anticipated to aid considerably in a micro-chemical analysis of the developing embryo.

The following experiments were undertaken in order to afford an insight into this particular problem—the chemical segregation of substances in the embryo of the tadpole during the early developmental stages. Accordingly, 300 eggs were selected and rayed during these stages. Of these, more than fifty were sectioned serially after formalin fixation according to Schultz's method. None was permitted to develop up to the time of metamorphosis. The raying was conducted immediately upon arrival at the proper stage of development in their natural environment. The X-ray tube carried a current strength of 50 Mam. at 50 K.V.

To each group of from twenty to twenty-five eggs a dosage of 100 Mam. minutes was given at a distance from the target of 17.5 cm.

Through prolonged experimentation it had been ascertained that the position of the egg with regard to the target, *i.e.*, whether the animal pole or vegetable pole was uppermost, did not in any way influence the results. Consequently, no attempt was made to orient them. The results show a remarkable uniformity of defect produced by this method. The embryos presented every histologic detail which had been noted previously by the author when the fertilized ovum at the two-cell stage had been rayed as described in the *Anatomical Record* of November, 1919. Entirely apart from the consideration of chemical composition of the proanlagen afforded by this method of experimentation, the results are interesting when interpreted upon the basis of a readily controlled and stable physical force leading to the production of a uniformly defective morphologic condition.

Histologically the specimens presented a defective development of the central nervous system in which the neurocele was over-distended, its parietes especially thinned upon the dorsal wall, and its cavity partly filled with cytoplasmic and nuclear detritus. The heart showed considerable injury, so severe in some instances as to be represented by a mere cord of tissue, containing no cavity and surrounded by an enormously enlarged pericardial space, which, like the neurocele, was partly filled with cellular detritus. All of the tissue spaces as well as the body cavities contained this evidence of cytologic injury and may be presented as evidence of the uniformity of injury produced by the X-ray energy.

Considering our lack of information regarding the correlation of chemical constitution to morphologic detail in the embryo, an explanation covering this phenomenon must necessarily rest very largely upon hypothesis. For convenience such an explanation is divisible into two categories—one dealing with the nature of the chemical or physical changes induced; and the other sequential to this, the morphologic variation produced, since the developmental mechanism concerned must rest upon either a physical or chemical basis.

A constant and uniform alteration of the molecule might be assumed to lead to correspondingly constant and uniform morphologic defects where the energy utilized is sufficient and when the raying is conducted during the earliest developmental stages. Granted that the chemical constitution of the proanlagen constituents, both nutritive and enzymatic, remain constant during these early stages, it is reasonable to assume that the absorption capacity of these substances would be also constant during their ontogeny and the defects produced through the utilization of the same amount of X-ray energy would present the same morphologic departures from normal irrespective of the age of the embryo. The uniformity of defect produced by these experiments argues to the validity of this hypothesis. But on the other hand, the experiments throw little light upon the question as to whether either the nutritive or enzymatic substances or both are concerned in the production of the defect. It is conceivable that the deprivation of the enzymes of the sub-

stances out of which the morphologic features of differentiation are formed would lead to the same abnormal developmental end-result as an injury manifested upon the enzymes themselves. The presence of this change is well substantiated both by these and the November experiments and may be accounted for upon either of these two grounds.

The quantity of cytoplasmic and nuclear detritus derived from all pro-anlagen elements stands in direct ratio rather to the amount of energy used than to the stage of development at which the raying was performed. Here again evidence exists for the uniform distribution of chemical substances throughout the blastomeres in their early stages. It is significant that the nuclear and cytoplasmic nature of this detritus evidences a change wrought not only upon the nucleus but in the cytoplasm as well. The view is substantiated apparently that the resultant of the energy reaction consists in the suspension of but one physiologic factor of cell differentiation. The exact nature of this alteration is consequently difficult to identify.

W. M. BALDWIN.

HOSPITAL AND COLLEGE NOTES

Edited by CLINTON B. HAWN, M. D.

ALBANY HOSPITAL

A respiration laboratory for the determination of basal metabolism has been equipped at the Albany Hospital.

Indirect calorimetry for basal metabolism estimations, particularly in thyroid diseases, now commands the attention of the medical profession and added interest is given to the physiology and pathology of respiration. Some of the uses to which basal metabolism determinations have been put are:

- (1) To differentiate mild or definite cases of hyperthyroidism from neuroses and early tuberculosis;
- (2) To determine more accurately the severity of obvious cases of hyperthyroidism and hypothyroidism;
- (3) As a guide to the amount of radiation (Roentgen ray or radium) therapy needed in a case of hyperthyroidism;
- (4) As an index to the degree of toxicity of adenomata of the thyroid;
- (5) As a guide for the surgical removal of hyperplastic colloid and adenomatous thyroid;
- (6) As a guide to correct thyroid administration.

It is the aim of this laboratory to co-operate with other departments of the hospital and physicians generally and thus place the advantages of basal metabolism determination at the disposal of all physicians for the study of their patients.

THE TROY HOSPITAL

The annual election of officers of the staff was held January 17, 1922. The following officers were elected:

DR. M. D. DICKINSON (A.M.C., '90) *President*.

DR. J. H. REID (A.M.C., '04) *Vice-president*.

DR. F. M. SULZMAN (A.M.C., '02) *Secretary and Treasurer*.

At the meeting it was decided to continue the monthly clinics, to which all members of the profession are invited. These clinics are held on the evening of the third Tuesday of every month. At these clinics monthly statistics are released, verbal autopsies are performed and professional problems are solved. The problem for the next meeting to be held on February 21 is "Primary and Secondary Anaemias."

On January 9, 1922, triplets were born at the Troy Hospital, delivered by Dr. Michael Keenan, A.M.C., '88.

CURRENT EVENTS

Edited by WILLIAM P. HOWARD, M. D.

ALBANY DEPARTMENT OF HEALTH

STATISTICS, DECEMBER, 1921

DEATHS FOR THE MONTH OF DECEMBER, 1921

Accidents and Violence.....	16	Scarlet Fever.....	0
Cancer.....	14	Whooping Cough.....	0
Apoplexy.....	14	Measles.....	0
Bright's Disease.....	14	Deaths under one year.....	15
Tuberculosis.....	12	Deaths over 70.....	51
Pneumonia.....	10	Death rate (non-residents included).....	18.58
Broncho-pneumonia.....	7	Death rate (non-residents excluded).....	15.42
Diphtheria.....	5	Births.....	190
Influenza.....	3	Still Births.....	4
Diarrheal Diseases.....	2		
Typhoid Fever.....	1		

DIVISION OF COMMUNICABLE DISEASES

Pneumonia.....	90	Scarlet Fever.....	4
Chickenpox.....	87	Septic Sore Throat.....	2
Diphtheria and Croup.....	47	Cerebro-spinal Meningitis.....	1
Influenza.....	40	Smallpox.....	0
Measles.....	34	German Measles.....	0
Tuberculosis.....	32	Mumps.....	0
Whooping Cough.....	10		—
Typhoid Fever.....	4	Total Cases Reported.....	351

Number of days quarantine for scarlet fever:

Longest.....33 Shortest.....30

Number of days quarantine for diphtheria:

Longest.....40 Shortest.....10

Fumigations:

Rooms.....186 Buildings.....49

Milk bottles disinfected.....900

MISCELLANEOUS

Tuberculosis

Living cases on record December 1, 1921.....586

Cases reported:

By card.....25

Dead cases by certificate.....7

— 32

618

Dead cases previously reported.....	5
Dead cases not previously reported.....	-
Removed.....	7
Died out of town.....	1
Recovered.....	0
Unaccounted for.....	0
	20
Living cases on record January 1, 1922.....	598
Non-resident deaths.....	3
Resident deaths.....	9

LABORATORY REPORT

<i>Diphtheria</i>		<i>Meningococcus</i>	
Initial positive.....	81	Positive.....	0
Initial negative.....	709	Negative.....	0
Release positive.....	137		
Release negative.....	318	Total.....	0
Unsatisfactory.....	42		
	-		
Total.....	1287		
<i>Sputum for Tuberculosis</i>		<i>Wassermann Tests</i>	
Positive.....	29	Positive.....	60
Negative.....	171	Negative.....	199
	-	Unsatisfactory.....	10
Total.....	200	Total.....	269
<i>Widals</i>		<i>Gonorrhoea Examinations</i>	
Positive.....	5	Positive.....	27
Negative.....	13	Negative.....	52
Unsatisfactory.....	3		
	-	Total.....	79
Total.....	21		
		Milk analyses.....	180
		Water analyses.....	0
		Pathological examinations.....	0
		Miscellaneous examinations.....	6
			-
		Total examinations.....	2042

DIVISION OF MARKETS AND MILK

Public market inspections.....	23	Cows rejected.....	3
Market inspections.....	140	Milk depots inspected.....	38
Fish market inspections.....	16	Inspections of stores selling milk.....	26
Slaughter house inspections.....	1	Dairies inspected.....	24
Rendering establishment inspections.....	1	Milk houses examined.....	24
Pork packing house inspections.....	6	Milk cans inspected.....	271
Hide house inspections.....	0	Milk cans condemned.....	0
Cows examined.....	214	Complaints investigated.....	0
Cows quarantined.....	1		

THE ALBANY GUILD FOR PUBLIC HEALTH NURSING

REPORT FOR DECEMBER, 1921

1. *Number of new cases this month*, 208. Classified economically, free, 79; bed cases, 22; prenatal, 14; dispensary social service, 15; tuberculosis (pos.), —; tuberculosis (super), 16; venereal social, 12. Paid, 129; limited means, bed cases, 61; Metropolitan, bed cases, 51; Metropolitan, prenatal, 17; Western Union, 0. Cases carried over from last month, 736. Classification of bed cases: Medical, 105; surgical, 4; obstetrical, 31; prenatal, 31; confinements, 25; maternity, 6; miscarriage, 1; number of babies born, 31.

2. *Visits for Nurses* (all departments), 1620; for bed care, 864; prenatal instruction, 94; tuberculosis (sup. and inst.), 91; venereal disease instruction, 13; general social service, 317; for other purposes, 105; dispensary social, 95; supervision, 41.

3. *Disposition of Bed Cases*.—Discharged recovered, 59; discharged improved, 29; discharged unimproved, 11; discharged dead, 5; discharged to other care, 23; carried, 185. Disposition of other cases: Prenatal: Discharged to maternity care, 31; discharged to hospital, 5; discharged to other care, 5; carried, 55. Dispensary social service: Discharged dispensary care, 0; carried, 0. Venereal: Discharged cured, 12; discharged without permission, 16; discharged to other care, 0; carried by dispensary, 45; carried under super., 47; carried under care at the House of Good Shepherd, 26. Tuberculosis: Discharged dead, 1; discharged ret. from Hosp., 2; discharged not T. B., 9; carried (positive, supervision), 432. Total number of cases carried over into January, 800.

5. *South End Dispensary Report*.—Number of clinics, 105; surgical, 11; medical, 8; gynecological, 7; prenatal, 4; eye and ear, 17; venereal, 12; nerve, 4; nose and throat, 8; skin, 4; children, 7; lung, 4; children's lung (observation clinic), 4; pre-school, 3; children's observ., 4; children's heart, 4; clinics with doctor attending, 101; clinics without doctor attending, 4. Number of new patients treated, 213; number of old patients treated, 925; total number of patients, 1138.

Number of Metropolitan calls this month, 842; check received for last month's Metropolitan calls, \$334.05.

NATIONAL MORTALITY STATISTICS

1. *MORTALITY FROM CANCER*.—The Department of Commerce, through the Bureau of the Census, announces that nearly 73,000 deaths were due to cancer in the death registration area of the United States in 1920, and if the rest of the United States had as many deaths from this cause in proportion to the population, the total number of deaths from cancer in the entire United States for 1920 was 89,000, while for 1919 the number is estimated as 84,000 or 5,000 less than for 1920.

The trend of the cancer death rate is upward, the rate for 1920 being higher than that for any earlier year in 22 of the 33 states for which rates are shown. The cancer death rate in the registration area in 1920 was 83.4 per 100,000 population, against 80.5 per 100,000 population for 1919. In comparing the death rate from cancer in one state with that in another, the Bureau uses "adjusted" rates in order to make allowance for differences in the age and the sex distribution of the population, because generally speaking, only persons in middle life and old age have cancer, so that a state with many old persons may be expected to have more deaths from cancer than a state with comparatively few old persons.

The highest "adjusted" cancer rate for 1920 is 98 per 100,000 population for the State of Massachusetts, and the lowest is 45.9 per 100,000 population for the State of South Carolina.

2. MORTALITY FROM TUBERCULOSIS (ALL FORMS).—The Department of Commerce, through the Bureau of the Census, announces that nearly 100,000 deaths were due to tuberculosis in the death registration area of the United States in 1920, and if the rest of the United States had as many deaths from this cause in proportion to the population, the total number of deaths from tuberculosis in the entire United States for 1920 was about 122,000, while for 1919 the number is estimated as 132,000, or 10,000 more than for 1920.

The trend of the tuberculosis death rate is downward. In the registration area of the 33 states which show rates for more than one year, 29 show their lowest rates for the year 1920. The tuberculosis death rate in the registration area in 1920 was 114.2 per 100,000 population against 125.6 per 100,000 population for the year 1919.

3. MORTALITY FROM ORGANIC DISEASES OF THE HEART.—The Department of Commerce, through the Bureau of the Census, announces that 124,000 deaths were due to organic diseases of the heart in the death registration area of the United States in 1920, and if the rest of the United States had as many deaths from this cause in proportion to the population, the total number of deaths from organic diseases of the heart in the entire United States for 1920 was 151,000, while for 1919 the number is estimated as 138,000, or 13,000 less than for 1920.

The trend of the death rate from organic diseases of the heart is upward, the lowest recorded rate for the registration area having been 111.2 per 100,000 population for the year 1900 and the highest rate 153.8 per 100,000 population for the year 1917. For 1920 the rate was 141.9 against 131 per 100,000 population for 1919.

"Adjusted" rates based on the standard million population have been calculated to permit better interstate comparisons for the year 1920. The highest adjusted rate from organic diseases of the heart for 1920 is 180.8 per 100,000 for the State of New York and the lowest is 87.3 for Kentucky.

THE ST. LOUIS MEETING OF THE AMERICAN MEDICAL ASSOCIATION

The May meeting of the American Medical Association at St. Louis promises well toward being the largest in attendance of any of the Association's sessions. Since the publication of the list of hotels in the *Journal of the Association* in December, inquiries and reservations are being made daily. The hotels and the Conventions Bureau are aiding the Committee in a most satisfactory and helpful way to see that the Fellows are comfortably housed and accommodated. The A. M. A. meetings tax all cities entertaining them to the limit of hotel capacity. Whenever possible a good Fellow should double up so that no one is left without comfortable lodging.

Dr. Louis H. Behrens, 3525 Pine St., St. Louis, Mo., is chairman of the Committee on Hotels.

COURSE OF INFECTIOUS DISEASES AND PUBLIC HEALTH

The fourth annual Course in Infectious Diseases and Public Health to be given by the Albany Medical College in co-operation with the State Department of Health will begin March 2, 1922. This course has always been very popular not only with health officers but with physicians as well and every effort has again been made to consult the convenience of the busy practitioner who may desire to attend. For prospectus or other information, address Dr. Charles C. Duryee, State Department of Health, Albany, N. Y.

ALUMNI NOTES

Edited by CHARLES C. DURYEE, M. D.

1866

DR. PETER H. HULST, health officer of the village of Greenwich, N. Y., is also acting health officer of the town of Easton, in the absence of Dr. L. R. Oatman who is in Europe.

1868

★ DR. NELSON H. MESICK of Glenco Mills, Columbia County, N. Y., died suddenly December 14, 1921, from heart disease, aged 76. Dr. Mesick was a member of the Medical Society of the county of Columbia and the State Medical Society.

1875

★ DR. WILLIAM STEVENS of Cairo, N. Y., died November 7, 1921, of chronic arthritis. Dr. Stevens was graduated at the Albany Medical College in 1875 and began practice in Cairo where he remained three years after which he went abroad. Upon his return he began practice in New York City which he continued until 1919 when owing to ill health he returned to Cairo.

Dr. Stevens was a member of the Academy of Medicine and of the New York State Society. He was a former president of the county medical societies of New York and Greene. He was also a member of Northwest Medical and Surgical Society.

1877

On Saturday night, January 14th, at the Hotel Astor, New York City, between two and three hundred intimate friends of Dr. MAURICE J. LEWIS gathered to do honor to him as a man, as a citizen and as a progressive physician. The function took the form of a dinner, served in the best style of the Astor cuisine. Dr. Royal S. Copeland, Health Commissioner of New York, wielded the gavel in the post-prandial features of the affair, and proved himself a past-master in this particular. Among the friends of Dr. Lewis who were in attendance could be noted many men and women of prominence in the many activities with which he has been associated during his diversified career. Albanians, ex-Albanians, members of all the professions and personal friends vied with one another to manifest their friendship for their guest. "He has no favors to distribute, no offices to fill, no gratuities to dispense, no riches in moneys to fortify his standing and yet withal we have gathered here in such goodly numbers to tell him by action and by word of mouth that we love him because of his personal qualities, because of the radiance which emanates from his personality, because of his qualities of mind and his humanitarian attributes of heart." It was in the above language that the toast-master opened his remarks. And these sentiments seemed to animate all of the speakers as

in turn they paid tribute to the guest of the night. Regent Bridgman, Col. H. A. Metz and Judge John G. Dyer made the principal addresses. Letters and telegrams were received from scores of Dr. Lewi's friends who were enforcedly absent but a few of which were read—those only which dealt with features of the Doctor's life and activities which had a broad appeal.

The surprise to the guest came when the last speaker had finished and Dr. Copeland arose and on behalf of those present, placed in Dr. Lewi's hands a handsome watch and chain—"a memento of this occasion which is to denote our love of you in a form which shall transcend to your children and to your children's children." The inscription on the watch reads: "To Dr. Maurice J. Lewi in appreciation of his services to humanity, January 14th, 1922." Dr. Lewi's response was feeling. He refused to accept the verdict of his friends to the effect that he was a "big" man entitled to consideration on the score of greatness. Those partaking in this function had failed to consider that the microscope and not the telescope should be employed to scrutinize and favorably adjudge the acts of those who were worthy of a niche in the real hall of fame. Kindness and blindness go hand in hand when friends judge friends. And so the Doctor stated that while he refused to be considered great, he desired to be recognized as grateful and to emphasize his right to the latter he would not hold them longer by farther attempt at speech.

The happy evening closed with a lusty cheer from the guests. There was great regret that Drs. Downing and Vander Veer who were scheduled to speak were unable to be present because of personal illness.

1879

DR. WILLIAM E. LOTHRIDGE, R. F. D., Watervliet, N. Y., was recently elected supervisor of the town of Colonie and consequently president of the Board of Health.

1882

DR. ADAM Y. MYERS of Seward, N. Y., is vice-president of the Medical Society of the County of Schoharie.

1883

DR. HERBERT L. ODELL of Sharon Springs, who has been secretary of the Medical Society of Schoharie for many years, was re-elected to that office at the annual meeting held at Cobleskill, N. Y.

DR. CHARLES P. McCABE of Greenville, N. Y., will act as health officer during the absence of Dr. Wasson in California.

1885

DR. F. H. RIDER of 858 Madison avenue, Albany, N. Y., has been appointed health officer of the recently incorporated village of Colonie.

1889

DR. JAMES R. STRANG, Schenectady, R. F. D. 1, comments most interestingly upon the reprint of an article written by Dr. March, and recently sent to the Alumni of the Albany Medical College. It is as follows:

"The lecture of Dr. March, which was mailed me recently, on the expediency of establishing a medical college in the city of Albany, interested me very much. From all I have read and heard of Dr. March he must surely have been a wonderful man. I recall the many times I have heard Dr. Vander Veer, when lecturing to the students way back in 1889, relate some important incident or fact connected with the life and work of this great man. He did it with so much feeling and respect that I can never forget it. At the time of Dr. March's great work of founding the Albany Medical College, my father was attending lectures at Fairfield College, which at that time was a flourishing school. He often told me how strongly opposed the faculty of that college was, at that time, to the establishment of a medical school at Albany. But despite the great opposition to Dr. March's project he won, and brought with him such great men as Drs. Armsby, Beck, and MacNaughton and there was then no doubt left as to the success of the Albany Medical College. It would seem as if the energy and enthusiasm possessed by Dr. March for the promotion and study of medicine and surgery has no equal at the present time. When we think of the toil and privation endured by those teachers of medicine, it should make us at the present day blush with shame to ever think that we have any such thing as a hardship."

1890

DR. R. C. WATERBURY of Kinderhook, Columbia County, N. Y., recently elected assemblyman from that district, has begun his duties at Albany. At the opening session, Dr. Waterbury found his desk covered with floral tributes presented by a committee of citizens from his district.

1891

DR. WILLIAM J. FLEMING, 169 Third street, Troy, N. Y., as retiring president of the Medical Society of Rensselaer County, at the annual meeting addressed the society on the subject "Some topics that have presented themselves during my administration."

DR. JAMES W. WILTSE, 176 State street, Albany, N. Y., has been appointed health officer of Albany, by the mayor of that city.

DR. LOUIS R. OATMAN, Greenwich, Washington county, is absent on a trip to Europe.

1892

DR. LEROY BECKER of Cobleskill, N. Y., will be delegate to the State Society from Schoharie county for the ensuing year.

1893

DR. LOUIS VAN HOESEN, 511 Warren street, Hudson, N. Y., has been appointed health officer of the city of Hudson by the mayor.

DR. A. E. HOULE, 96 Congress street, Cohoes, N. Y., has been appointed a district physician by Mayor Cosgrove of that city.

1894

DR. ARTHUR SAUTTER, 220 State street, Albany, N. Y., retired from the position of health officer of the city of Albany on January 1, 1922. A Christmas celebration was held in the health office, at which were present Mayor Watt, the Commissioner of Public Safety, Dr. Sautter and the attaches of his office. Dr. Sautter was presented with a diamond stick-pin. Dr. Sautter has served in the health department of the city of Albany twenty years; twelve as deputy health officer and eight as health officer. Dr. Sautter is still in charge of the Hospital for Contagious Diseases, connected with the Albany City Hospital, and will devote his entire time to that and to diseases of the skin.

1895

DR. WILLIAM J. WANSBORO, 226 Lark street, Albany, N. Y., has been appointed deputy health officer of the city of Albany.

1896

DR. J. E. VIGEANT of Red Hook, N. Y., has been appointed health officer of the town of Milan. Dr. Vigeant is also health officer of the town and village of Red Hook.

1897

DR. JAMES J. NOONAN of Cohoes, N. Y., has been appointed a district physician of that city.

1898

DR. CHARLES S. PREST, 44 East 23rd Street, New York City, is Director of the Public Health Service, Atlantic Division, American Red Cross. The Atlantic Division consists of the following states: New York, New Jersey, Connecticut, Pennsylvania, Delaware and Maryland. Dr. Prest's home address is still Waterford, N. Y.

DR. OTIS Z. BOUTON of Fultonville, Montgomery county, N. Y., has been appointed health officer of the Consolidated District of the Village of Fultonville and Town of Glen.

DR. WILLIAM N. CAMPAIGNE, 1825 Fifth avenue, Troy, N. Y., was recently appointed county physician by the Board of Supervisors of Rensselaer county.

DR. LYLE B. HONEYFORD, Catskill, N. Y., has recently been appointed health officer of the town of Catskill.

1900

DR. WILLIAM E. CURTIN, 136 Mohawk street, Cohoes, N. Y., has been appointed a district physician of that city.

1901

DR. CHARLES I. WITBECK, 137 Mohawk street, Cohoes, N. Y., has been re-appointed physician to the jail at Cohoes.

1902

DR. STILLMAN S. HAM, 1503 Union street, Schenectady, N. Y., the retiring president of the Medical Society of the County of Schenectady, chose for the subject of the president's address—"Some Critical Observations of Pneumonia." The annual meeting of the society was held at the Mohawk Club in Schenectady and was largely attended by the members. A luncheon was served. Dr. Kent S. Clark, 223 Nott Terrace, Schenectady, N. Y., was re-elected treasurer of the Medical Society of the County of Schenectady.

1905

DR. CHESTER A. HEMSTREET, 819 River street, Troy, N. Y., was elected president at the annual meeting of the Medical Society of the County of Rensselaer.

1907

DR. AUGUSTUS J. HAMBROOK, 40 State street, Troy, N. Y., was elected vice-president at the annual meeting of the Medical Society of the County of Rensselaer.

1908

DR. STANTON P. HULL, Petersburg, Rensselaer county, N. Y., has been elected supervisor of that town and thus becomes president of the Board of Health of that town.

DR. WILLIAM H. CONGER, 255 Mill street, Poughkeepsie, N. Y., has been appointed health officer of the city of Poughkeepsie. Dr. Conger assumed the duties of his office January 1, 1922.

1910

DR. WILLIAM A. BING has been appointed superintendent of the Montgomery county tuberculosis sanitarium, and has assumed his duties.

1911

DR. WALTER D. McKENNA, 415 Grand street, Troy, N. Y., has been commissioned a major in the Medical Officers' Reserve, and assigned to the 323d Medical Regiment of the 98th Division. Dr. McKenna was attached to the staff of Major General Bliss who sat in the allied council in Paris, as American spokesman.

DR. CHARLES E. MAXWELL, 22 Jay street, Schenectady, N. Y., has received the appointment as county physician of Schenectady county. Dr. Maxwell has also been commissioned major in the Organized Reserves and assigned to the command of the Ambulance Battalion of the 322d Medical Regiment of the 98th Division, Organized Reserves.

1912

DR. JAMES H. MITCHELL, JR., 268 Remsen street, Cohoes, N. Y., was reappointed coroner's physician by the Board of Supervisors of Albany county.

1914

DR. ROBERT REID, North Tarrytown, N. Y., has been appointed health officer of North Tarrytown.

DR. EDWARD J. CALLAHAN, Schuylerville, N. Y., was elected vice-president of the Medical Society of County of Saratoga at the annual meeting held at Saratoga Springs.

1915

DR. ROBERT C. SIMPSON, 136 Market street, Amsterdam, N. Y., has been appointed county physician by the Board of Supervisors of Montgomery county.

DR. CHARLES W. K. TOMLINSON, 250 East Main street, Amsterdam, N. Y., has been appointed city physician of Amsterdam, by the mayor of that city.

1917

DR. WILLIAM E. GAZELLEY, 234 Sixth avenue, Schenectady, N. Y., has been appointed coroner's physician by the Board of Supervisors of Schenectady county.

DR. ANATHOL M. BREAUULT, 61 Saratoga street, Cohoes, N. Y., has been reappointed a member of the Board of Health of Cohoes.

DR. RAYMOND E. KIRCHER, 478 Clinton avenue, Albany, N. Y., has been appointed one of the district physicians of the city of Albany, by the health officer, Dr. J. W. Wiltse.

NEW YORK STATE MEDICAL LIBRARY

Edited by FRANCES K. RAY

RECENT ACCESSIONS

- Albrecht, Othmar—Der anethische symptomenkomplex. 1921.
- Alsaker, R. L.—Eating for health and efficiency. 1917.
- American Child Hygiene Association—Transactions, 11th session. 1920.
- American encyclopedia and dictionary of ophthalmology, ed. by C. A. Wood. v. 18, 1921.
- American Medical Association—Council on pharmacy and chemistry. Annual report: investigations of the Therapeutic Research Committee. — Section on pathology and physiology. Transactions. v. 72, 1921.
- American Public Health Association—Half a century of public health, jubilee historical volume, . . . ed. by M. P. Ravenel. 1921.
- Amoss, H. L.—Chemistry and chemical urinalysis for nurses. 2d ed., 1919.
- Autenrieth, Wilhelm—Laboratory manual for the detection of poisons and powerful drugs, tr. by Warren, 5th Amer. ed., 1921.
- Baldwin, B. T.—Physical growth of children from birth to maturity. 1921. (Univ. of Iowa. Studies in child welfare, v. 1, no. 1.)
- Bolton, Florence—Exercises for women. 1914.
- Bowlby, A. A. and Andrewes, F. W. —Surgical pathology and morbid anatomy. 7th ed., 1920.
- Boyd, M. F.—Practical preventive medicine. 1920.
- Bridge, Norman—The marching years. 1920.
- Browne, E. G.—Arabian medicine, being the Fitzpatrick lectures delivered at the College of Physicians in November, 1919, and November, 1920. 1921.
- Canadian Association for the Prevention of Tuberculosis —Annual report with transactions. v. 21, 1921.
- Cleveland Hospital Council—Cleveland hospital and health survey. 1920.
- DeCrisis, Max —Die beteiligung der humoralen lebensvorgänge des menschlichen organismus am epileptischen anfall. 1920.
- Druggists' circular formulary book. 1921.
- Eccles, R. G.—Food preservatives. 1905.
- Eddy, W. H.—Vitamine manual. 1921.
- Ergebnisse der physiologie—v. 19, 1921.
- Eycleshymer, A. C.—Anatomical names, especially the Basle nomina anatomica (B.N.A.). 1917.
- Garrison, F. H.—Introduction to the history of medicine. 3d ed., 1921.
- Harvey Lectures—v. 15, 1919-20.
- Herben, B. S.—Jack O'Health and Peg O'Joy: a fairy tale for children. 1921.
- Higgins, A. E.—Psychology of nursing. 1921.

- Hoch, August—Benign stupors, a study of a new manic-depressive reaction type. 1921.
- Hospital of the Protestant Episcopal Church in Philadelphia—Medical and surgical reports. v. 5, 1917-20.
- Humphrey, John—Drugs in commerce. . . . n.d.
- International Clinics—Ser. 31, v. 4, 1921.
- Jackson, J. A. and Sailsbury, H. M.—Outwitting our nerves: a primer of psychotherapy. 1921.
- Jahresbericht über die fortschritte auf dem gebiete der chirurgie. v. 23, 1917.
- Johnstone, James—The mechanism of life. 1921.
- Jones, Sir Robert, ed.—Orthopedic surgery of injuries. 2 v., 1921.
- Kahn, M. and Kahn, M. H.—Functional diagnosis. 1921.
- Keen, W. W.—Addresses delivered at the celebration of the 84th birthday of Dr. W. W. Keen, Jan. 20, 1921.
- Keen, W. W.—Surgery, v. 8 and Index, v. 1-8. 1921.
- Keith, Arthur—Human embryology and morphology. 1921.
- Kleist, Karl—Die influenzapsychosen und die anlage zu infektionspsychosen. 1920.
- Krisch, Hans—Die symptomatischen psychosen und ihre differentialdiagnose. 1920.
- McCollum, E. V.—Newer knowledge of nutrition; new ed., 1921.
- Marchand, Werner—Early stages of tabanidae (horse flies). 1920. (Rockefeller Institute. Monograph no. 13.)
- Mayberry, J. W.—Primary physiology and hygiene. 1921.
- Metchnikoff, Olga—Life of Elie Metchnikoff. 1921.
- Myers, V. C.—Practical chemical analysis of blood. 1921.
- New Hampshire Medical Society.—Transactions. v. 130, 1921.
- New York City—Bureau of educational experiments. Health, education and the nutrition class, by J. L. Haut, B. J. Johnson and E. M. Lincoln. 1921.
- New York Nutrition Council—Bibliography committee. Nutrition bibliography. 1921.
- Ochsner, A. J., ed.—Surgical diagnosis and treatment. v. 3, 1921.
- Overend, Walker—Radiography of the chest. vol. 1: Pulmonary tuberculosis. 1920.
- Packard, F. R.—Life and times of Ambroise Paré. 1921.
- Parfitt, J. B.—Operative dental surgery. 1921.
- Posse, Nils—Manual of medical gymnastics; ed. by Rose Posse. 1907.
- Potzl, Otto—Zur Klinik und anatomie der reinen worttaubheit. 1919.
- Progressive Medicine—v. 4, 1921.
- A Psychiatric Milestone—Bloomington hospital centenary, 1821-1921.
- Pusey, W. A.—Syphilis as a modern problem. 1915.
- Riggs, A. S.—Shepard of Aintab. 1920.
- Robinson, Victor—Life of Jacob Henle. 1921.
- Rucker, Augusta—Ten talks to girls on health. 1921.

- Ryan, T. J. and Bowers, E. F.—Teeth and health. 1921.
- Sabourin, Charles.—Rational treatment of pulmonary tuberculosis. 1921.
- Schneider, Albert.—Microanalysis of powdered vegetable drugs. 1921.
- Schroder, P.—Die spielbreite der symptome beim manischdepressiven irresein und bei den degenerationspsychosen. 1920.
- Southern Surgical Association.—Transactions. v. 33, 1920.
- Vaughan, V. C.—Epidemiology and public health. 1922. v. 1: Respiratory diseases.
- deVecchi, Paolo—Modern Italian surgery and old universities of Italy. 1921.
- Verhandlungen der Deutschen pathologischen gesellschaft; 18e tagung. 1921.
- Wells, H. G.—Chemical pathology. 4th ed. 1920.
- White, W. A.—Foundations of psychiatry. 1921. (Nervous and mental disease monograph ser., no. 32.)

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ALBANY MEDICAL ANNALS

A CHAPTER ON SANITARY DUTIES, AS OBSERVED
IN THE HISTORY OF ALBANY, FROM
1859 TO DECEMBER 31, 1921

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The title of this paper is in keeping with the desire of the author to indicate that, owing to wise legislation in enacting laws, it is obligatory for a city, as much as possible, to protect the lives of its citizens.

The profession of medicine, in Albany, is entitled to a large percentage of credit, for bringing to the attention of the public such errors as require remedial measures, yet, at the same time, it is to be recognized that they have had the loyal support of the city government.

At times newspaper statements become very impressive, especially when we consider that they are the guiding channels for benefit to the public, ultimately to the individual.

Such are the thoughts that arise in the analysis of that which the Common Council was recently called upon to act for the repaving of Washington Avenue, from Northern Boulevard to Lexington Avenue, for making changes in the water supply, for completing motorization of the fire department, and for extending the river front improvement in the City of Albany. Here is a chapter that the future historian may look back upon and be able to assert positively was wise legislative work.

Going back many years, there are now and then landmarks of progress made in the City of Albany, not well remembered

by the generations that follow one after another, but are so secure in the accomplishment of progress they will bear a review from which much comfort and encouragement can be derived.

The Civil War returned many officers skilled in engineering projects, in efficiency in transportation, in organizing work of various kinds, but to the medical man there came not only a better knowledge of the treatment of wounds, and skill in operative intervention, but, also, a clearer understanding of sanitary science. The line and staff officers of so great an army knew the value of a pure water supply, proper drainage, ventilation and preparation of food. This knowledge was soon brought into use in the examinations of civil conditions. Perhaps no one city more than Albany presented a more startling problem for better study of preventive infections, that so clearly demanded improvement, and which began as far back as 1859 extending, in an irregular, but investigating manner, to 1878. During that time investigation demonstrated the demand for a better water supply. The city was in a sad condition regarding drainage and sewers; the old pump log from the original Batterskill water supply was not yet entirely useless, and the wood box drains had about ceased to perform their function. Many of the later improvements, many of the houses that were being erected, drained in a concealed manner, not connected with any useful sewer, often on the surface, causing local points of infection, that told too well the history of diphtheria and infectious diseases.

It was no comfort to the sanitarian to look back but a few years to realize that the "Albany sore throat" was a stigma, and a problem requiring elucidation. Actual conditions were found where expensive dwellings had no connection with any drains, where new buildings were constructed and left to drain into the soil. Is it to be wondered that in those days there were epidemics of diphtheria? A sad, sad story!

One of the very first papers on the subject of diphtheria was presented by Sylvester D. Willard, M. D., of Albany, and to be found in the *Transactions of the Medical Society*

of the State of New York, for 1859. A better description of the symptoms has scarcely been evolved since.

After this several papers followed, one, in particular, by Dr. U. Potter, of Hallsville, N. Y., in which he refers to the deposit about the tonsils and fauces, and that this form of sore throat had developed simultaneously in Albany, Chicago and New Orleans, also, during the cold, damp climates, and long winters of New England. One sentence of his paper was most prophetic: "It must be classed with the mystic poisons of cholera, variola and scarlatina." How clearly our laboratories have since demonstrated the real germ and the surroundings producing the disease! In a paper by Ferris Jacobs, M. D., of Delaware, N. Y., he gives a very clear description of the disease, due to insanitary conditions.

It is to be noted in the meeting of the Medical Society of the County of Albany, for November 9, 1859, that, after a discussion by several members, on motion of Dr. Swinburne it was "Resolved: That this society be adjourned for one week, that time may then be secured for the discussion of the prevailing throat disease." At this adjourned meeting the term diphtheritis, or the prevailing throat disease, was discussed by several members of the society, together with their invited guests from Troy and elsewhere. There were a number of articles presented on the subject, with earnest discussions, regarding the diagnosis of croup, diphtheritic croup, malignant tonsillitis and other forms, but it was not until the germ of diphtheria was isolated that there was a correct differentiation of these conditions.

At a stated meeting, May 28, 1873, the president, Dr. A. Vander Veer, in the chair, the subject for discussion was the following resolution, adopted by the Common Council, and communicated to the society: "Resolved, That the physicians of the City of Albany be requested, individually, to communicate to this board their opinion as to whether the water of the Hudson River is sufficiently pure and wholesome to supply the city." The result of this meeting developed much discussion regarding our water supply, and extended over a period of years. The citizens of Albany,

as well as members of the medical profession, gave evidence of a desire for thorough investigation, and final action.

At a meeting of the County Society, November 9, 1875, it was stated as follows: "That until recently little intelligent consideration had been given to the subject of sanitary science in this country." In 1874 England had made a study regarding improvement in sanitation of factories, better drainage, the recognition of pollution of streams, with investigations that show even iron pipes would not resist disintegration from foul drainage, with special study of water supplies, and the destruction of fish. Encouraging results were obtained and towns made nearly as healthy as rural districts. It was found that fifty per cent of deaths were from causes that might have been removed. To physicians, these causes were manifest everywhere, and, thus traced to direct sources, wonders were done in staying the ravages of pestilence. All of this investigation in England was made use of in like conditions in this country.

At a meeting of the County Society, March 14, 1877, Dr. F. C. Curtis read a paper of great value on "Certain Points in Diphtheria," which was ably discussed by members of the society, and the treatment brought up-to-date.

As one of the observations made in a report of our medical officers, we find recorded that the slaughter houses were a source of local infection, and an ordinance was passed that no building within city limits could be used for this purpose, but this was only a feeble effort to correct the condition of water supply and disposal of city sewage.

Probably there are very few who remember the location of the original distributing reservoir, situated on the spot where the first high school was built, and now occupied by our splendid Court House, but which failed utterly in its ability to properly supply the city with safe drinking water. Other sources were established, which, in themselves, were infectious.

The subject of drainage, in its bearing upon infectious diseases, was presented in a very valuable report by Prof. Joseph M. Smith, of New York, as early as 1867. In addition to Prof. Smith's contribution there were several papers

following, and much discussion at the meetings of the County Society, regarding sanitation.

In 1878 a systematic effort was established, by the administration of Mayor Nolan, in appointing Dr. D. V. O'Leary as city physician, his duties to consist of encouraging reports from physicians and citizens pertaining to health questions, also the appointment of district health physicians. This was a beginning of an investigation of sanitary affairs in the City of Albany. Not much, however, was accomplished until 1880, when there was a marked impression made by discovering that the original surface creeks had been converted into a form of sewer, such as Fox and Beaver Creeks, and others, which were being used as open conduits for the sewage of factories, business houses, offices, and private dwellings. These were very seriously condemned by the city physician and his assistants. Much good resulted in betterment, but no real corrections accomplished.

The water supply of Albany attracted the attention of the members of the medical profession very early, and one of the first papers, by Willis G. Tucker, M. D., was published in the ALBANY MEDICAL ANNALS, October, 1880. This paper was full of the scientific opinion of the day, and presented in language most interesting and educational in its tone. This paper was followed by others which were very valuable and instructive in their makeup. Dr. Tucker was frequently consulted by Robert Lenox Banks, president of the Board of Water Commissioners, as well as by members of the Special Water Commission. A paper of great value on the "Purification of Water by Chemical Treatment," was read before the Medical Society of the County of Albany, February 23, 1892, by Dr. Tucker. Following these investigations of the water supply, by Dr. Tucker, came the introduction of the bacteriological examination, and it was plainly shown that the water supply at West Albany and supply from the river were contaminated waters. It is very much to the credit of the citizens of Albany that they continued their earnest agitation of this subject until the present excellent method of filtration was introduced.

In 1882 an effort was made to strengthen medical investigations somewhat, in regard to public health.

Political changes resulted in Dr. Henry R. Haskins being appointed city physician, and, in addition to the work of the district physicians, the mayor appointed a Sanitary Committee, consisting of Dr. A. Vander Veer, Mr. William H. Keeler, and Mr. John McKenna. This committee paid much attention to the disposal of house drainage, to the drainage of house toilets, and discovered that a large percentage of the latter were located in back yards, many of them never emptied, but allowed to drain into the surrounding soil, and were always offensive; that there were wells supplying certain districts in the city that were in danger of infection. They made a slight effort to establish some form of vital statistics, regarding a recommendation to the clergy requiring them to return copies of marriage certificates to the city physician, also intimating the necessity of death certificates being required. It was pitiful to note the opposition from owners of property.

In 1883 Dr. John Swinburne was elected Mayor and then began a distinct organization in care of sanitary matters. In accordance with some of the sanitary laws, established by city and state authority, the Mayor appointed a Board of Health. This consisted of the Mayor, ex-officio; Dr. A. Vander Veer, Dr. S. B. Ward, Thomas B. Dwyer, Robert Bryce, Jr., John McKenna and R. H. Bingham, the latter being city surveyor; Health Physician, Dr. D. V. O'Leary; Clerk, Edward H. Long; Inspectors, James H. Rooney, Lawrence E. Carey and William D. Dickerman. Members of the Sanitary Committee, previously appointed, were re-appointed, with the addition of John Boyd Thacher, and on August 28 a report was made on the re-examination of Beaver Creek as well as other so-called sewers, with a condemnation of their continuance, as well as a long list of complaints regarding privy vaults, sheds and outhouses, given by Capt. E. Riley, of the Fourth Precinct, who had been detailed for that work. Considerable advance was made in study of the water supply of the city, and much contamination was demonstrated in the West Albany source.

At this time the members of the Board of Health of Albany were greatly indebted to Dr. Jacob S. Mosher, who acted as consultant and gave very valuable assistance in meeting the insanitary conditions then present.

At a meeting on August 4, 1883, it was resolved that there be placed on the Minutes of the Board of Health, our deep appreciation of the services rendered by Dr. Mosher, and our feelings of sadness occasioned by his death.

1884. A. Bleecker Banks was elected Mayor, and Dr. Norman L. Snow made President of the Common Council. The organization of the health department was continued, with the addition of Albert Gallup to the Board of Health, and the appointment of Edward Brennan as inspector in place of Mr. Bingham.

During the period of 1885 Dr. Lewis Balch was appointed Health Physician, Dr. O'Leary having resigned in June. There was entered upon the records: "Resolved: That the Board of Health testifies to Dr. O'Leary's quiet, firm manner, in the discharge of his duties, and much regret expressed at the severance of their pleasant relations."

The Chief of Police was ordered to have all lanes, alleys, outhouses and other nuisances inspected. It was found that the contractor was not properly fulfilling his contract in removal of night soil. This consisted of taking material from vaults, house toilets and yard receptacles. This was done by the process of pumping into truck tanks, and carting to the lower end of the city, much of it being deposited into Island Creek. It was a most insanitary method, and exceedingly disgusting.

Examination showed sheep and cattle were being killed within city limits, contrary to city ordinances.

On July 14 a long report was made by Mayor Banks, as president, and Dr. Tucker, as chemist, from the Laboratory of the Albany Medical College, regarding the sanitary condition of the city.

In 1886 John Boyd Thacher was elected Mayor, with the re-appointment of Mr. Bingham and the addition of Max Kurth to the Board of Health, otherwise this body the same as the previous year. A further examination of the sewers

demonstrated that State, Beaver and Green streets were yet draining into the open Arch Street sewer, and the recommendation was made that all plans for erection of houses were to be submitted to the Board of Health for their approval. The Board reported that bodies were being removed from the city without death certificates being filed, and insisted that physicians and undertakers must give better attention to the carrying out of registration of deaths. There was a long discussion on the usual report of the danger of insanitary conditions relating to privy vaults, cesspools, stagnant pools, disposal of waste and infective refuse.

At a meeting of the Board of Health it was resolved that the city engineer and surveyor examine into the Martinville and Quail Street nuisances and remedy the same.

September 6. A report was presented on the above investigation that was most impressive. Many conditions were found indicating the existence of factors tending to the development of disease, especially diphtheria and intestinal troubles. Quite an amount of bob veal was destroyed, and investigation proved that the lack of garbage disposal, and like material, was very insanitary. In six weeks two hundred cases of scarlet fever, of a mild type, had developed immediately in these localities.

(To be continued)

SOME NURSING PROBLEMS AS SEEN FROM THE VIEWPOINT OF A SURGEON

*Read before the Annual Meeting of District No. 10 of the New York
State Nurses' Association, January 4, 1921*

By E. MAC D. STANTON, M.D., F.A.C.S.

Schenectady, N. Y.

It is my desire in this paper to picture some present day nursing problems as they are seen from at least one viewpoint. By way of introduction let me remind you that in the short time at my disposal, it is quite impossible to describe conditions in all their details. Also let me warn you that in order to bring facts out clearly in a paper such as this it is often necessary to emphasize the high lights so that from some other viewpoints the perspectives may appear to be distorted. The true solution of the problems I will touch upon can only be reached through a study of these problems as they are seen from the several viewpoints of all the interested parties.

During the past sixteen years it has been my privilege to watch the development of hospital work in two representative communities. The hospitals of Brockville, Ontario, are situated in a city of 9,800 population and the surrounding counties of Leeds and Grenville, including the total population up to other cities having hospital facilities, give an additional population of 12,800 or a total population for the hospital community of 22,600. Calculated on a similar basis Schenectady's hospital furnishes service to a population which may be conservatively estimated at 120,000.

These two communities are only 143 miles apart. The cost of living is approximately the same in each locality. Likewise, the average per capita wealth and the general standard of living is not far different. In neither community is there a medical or surgical group of outstanding reputation which might influence the number of patients going to the hospital. When I first became interested in the hospitals of these two communities there was no reason to suspect that they would not develop along relatively parallel lines.

Instead, however, of the hospitals of these two communities developing along relatively parallel lines I find today the widest possible divergence. In the Brockville community during the year ending in September, 1921, there was on an average one hospital bed occupied for each 219 inhabitants. In the Schenectady community in the year ending in June, 1921, only one hospital bed was occupied for 975 inhabitants, and more recently we have been running at the rate of approximately one bed occupied to 1200 inhabitants. This means that the sick of the Brockville community make more than four times more use of their hospital than do the sick of the Schenectady district. In its ultimate analysis this can only mean that the hospital facilities of the one community are vastly better adapted to the needs of that community than are those of the other community to its needs.

Because of the pressing necessity for brevity I will confine my statistics to Brockville and Schenectady. A rough survey of the situation, however, shows me that I could have selected many other districts to illustrate the same points. For instance, the figures presented by the Johnstown-Gloversville district are not materially different from those of the Schenectady district. In the Gloversville hospital district with a contributing population of about 43,000 I am told that they average forty-nine occupied beds or one to 880 inhabitants.

As regards the character of the service furnished by the hospitals of the two communities of Brockville and Schenectady I will say that from the patients' or the doctors' viewpoint there is very little difference. All have Class "A" ratings from the American College of Surgeons. As for myself, except for the question of expense, I would just as soon be sick or have a relative sick in one hospital as the other.

When we come, however, to study the problem of furnishing this service we find that it is vastly more difficult to furnish the service in the Schenectady community than it is in the Brockville community.

In Brockville it costs the hospitals approximately \$2.08

per patient-day. In Schenectady it costs at the present time approximately \$4.00 per day to furnish the same service. In the Canadian community the increased per capita cost due to the cost of living factor has been only thirty-four per cent which about corresponds to the increased purchasing power of the average family of the community. In Schenectady, on the other hand, the per capita cost of caring for patients has during the same period risen approximately 110 per cent, which is altogether out of proportion to the increased purchasing power of the average family of the community.

I venture to say that there is not a nurse here today who does not know very well that the average family of New York State cannot afford to send its sick to our hospitals at an average cost of \$4.00 per day for the care furnished by the hospital. We have simply got to liquidate a very large proportion of the excessive increase of cost noted above. Otherwise our hospitals can not perform their proper function in the community. In the long run public opinion, and the pressure exerted by those willing to do things as they should be done, will see to it that our hospitals do function as they should. At the present time the up-state hospitals of New York State are running at a patient-day cost of from \$3.35 to considerably more than \$4.00 per day. Data recently obtained from a number of representative hospitals of New York State showed only one running with a cost of less than \$3.50 per patient-day. It is my opinion that this cost must in the relatively near future be reduced to an average of about \$2.75 per patient-day.

My reason for bringing this subject before you this evening is that from whatever angle the problem is approached the limitations and restrictions placed on pupil nursing are the fundamental underlying causes of our excessive hospital costs and of our hospitals not serving the public as the public could and should be served.

During the past ten years I have heard a great deal concerning the various arguments for and motives behind the limitation of the number of pupil nurses and their duties so that I am fairly familiar with this side of the question.

I believe, however, that it can do no harm for me to place another side of the question before you this evening

From the broad viewpoint of society in general the education received by the pupil nurse while in training is absolutely unique. It is different in kind and social value from any other form of education received by women. The education received by the pupil nurse in training is the only education which fits the young woman equally well either to run her home or to earn her living.

It would be quite ridiculous to think of training all young women to be stenographers or music teachers because universal education along such lines would be of no social value to the community. On the other hand, there is not a community anywhere that would not be a better community with better homes, and better health, and better living conditions if every young woman in that community were to receive at least a short course in a nurses' training school.

From still another educational viewpoint the possibilities offered by the hospital training school are unique. I was born and raised on the campus of one of the great educational institutions of this country and have naturally always been much interested in educational subjects. I have no hesitancy in saying that the mental discipline and training offered by the average nurses' training school is fully equal to at least two and I believe three years in college. From the purely social standpoint, however, there is no comparison between the two. Boys or girls in college are drones, spending their parents' money and that of the college. During their time spent in college they are as a rule of no direct social value to the community. Their only excuse to society is that after graduation they will be able to do better work and thereby some day repay their debt to society. On the other hand, the pupil nurse is from the very day she enters training a most valuable member of society.

Once again we find the training offered the pupil nurse quite unusual among the educations available for women. The pupil nurse in training is of social value to the com-

munity during her period of training. Society recognizes this by furnishing her free tuition and board, room, laundry and a little allowance for incidental expenses. It costs real money to go to college, but the hospital training school is in a position to offer to a vast number of young women practically free of cost a form of education almost equal in mental training and discipline to the college course and one which from the standpoint of a woman's real work in life, that of bearing her children and running her home, is far superior to the average college course.

There is still one other point in which the education received by the nurse stands out in contrast to other forms of education. The modern psychological tests would seem to show that only a relatively small proportion of the general population is really fitted to make the best of a college education. On the other hand, the education received by nurses is very largely of an objective type vastly better adapted to the training of the average mind than is the form of education fostered by the average college.

In concluding this part of my paper I will again say that from the viewpoint of society as a whole the educational possibilities of the nurses' training school are absolutely unique. I for one believe that any attempt to sharply curtail these possibilities is definitely anti-social and that sooner or later the attempt will be doomed to failure.

With our hospitals literally starving for pupil nurses how are we in New York State meeting the opportunity to furnish to the greatest possible number of young women this most unique and socially useful form of education? Are we not by a rather arbitrary application of the so-called high school test excluding a very large proportion of our most available applicants?

I have no serious objection to the rule requiring one year high school or its equivalent for entrance to our training schools as they are now constituted, but I do most emphatically protest against the arbitrary interpretations given to the phrase "its equivalent" by our State authorities.

In the first place the average age for completing one year of high school in New York State is fourteen years and

eleven months. The average age for entering a training school should be and I believe is about twenty. Furthermore, only twenty-three per cent of those finishing the eighth grade continue their studies so as to finish the first year of high school. Does it not on the face of it appear absurd to exclude seventy-seven per cent of our available candidates by a test having no direct application to nursing and which is completed before age fifteen or five years before our candidates apply for admission to our training schools?

It seems to me that almost any bright girl who reads and writes and observes the ordinary things with which she comes in contact can and does actually get the equivalent of the one year of high school before age twenty. This latter is the rather liberal interpretation of the term "its equivalent" which has been adopted in Ontario. My observations have not led me to believe that any such liberal interpretation is applied in New York State. During the past eight years I have referred at least a dozen young women to training school authorities for the determination of this point. Everyone of these young women had been engaged for several years in some line of work requiring more than average mental ability. All of them in my opinion had learned far more than the equivalent of one year of high school and all had proved by what they had actually accomplished that they were young women of worth and ability. Not a single one of these young women was even given the benefit of a probation period.

Would it not be very much better to make our test dependent entirely on the fitness of the candidate at the actual time of application? It would be very easy to eliminate the mentally and educationally unfit by an examination given at age twenty rather than to depend on tests given by others at age fourteen.

Personally, I believe that the old probation system whereby when we wanted fifteen pupil nurses we could select them from twenty or more probationers was far superior to our present system. By our old system we actually obtained the nurses needed. If those who happened to be selected turned

out to be high school girls so much the better but it did not exclude others who were in every way their equal in the training school. As a matter of fact not all high school girls passed the probation period. Under our present system when the average New York hospital wants fifteen nurses it is fortunate if it gets twelve probationers and as far as their selection is concerned it is largely made by arbitrary standards determined years before they enter the training school.

The five or more probationers who were dropped during our old process of selection still had the benefit of their three months training and the hospital had the benefit of their services.

I have recently heard it stated that training schools were no longer to be so short of pupil nurses because the superintendents of training schools had recently decided that fifty pupil nurses was to be the standard for hospitals of 175 beds. To my mind this would simply emphasize an almost impossible state of affairs. This ratio of fifty pupil nurses to a hospital of 175 beds would be at least twenty short of the number actually required for the most efficient and economical conduct of the hospital. I believe that it would very soon result in active organized opposition on the part of the medical profession and the public.

Now let us look at another aspect of the problem. The high school test may be almost grotesque in its crudeness. The limitation of pupil nursing is fundamentally anti-social but such movements do not gain headway without a reason or some well defined motive. The fact is that if our hospitals were to develop normally and their educational capacities were to be fully utilized in training the three-year type of highly trained nurse we would soon have an oversupply of this type of nurse.

On the other hand the R. N. nurse must have learned by this time that a thousand laws directed against the certified nurse and other classes of nurses will not suppress the less educated nurse. In fact such laws only call attention to the availability of this form of nursing. A concrete example of this is seen in Schenectady. Out of eighty-three nurses on

our central registry only thirty-five are graduate nurses. As a matter of fact the certified nurse and the untrained nurse is a direct product of the failure of our hospitals to properly utilize their training facilities. The fifty-eight per cent of untrained nurses on our central registry represent a definite demand on the part of the public which can not be eliminated by any number of laws attempting to regulate the practice of nursing.

This opens up a subject which can not be fully covered in one paper. I would, however, like to make just a suggestion or two. More than twenty years ago, when I was still living on a college campus, a peculiarly parallel problem was faced by the great technical colleges of the West. Take for instance, the standard four-year course in agriculture. From the viewpoint of the farmers of the Middle West the colleges were turning out a surplus of super-agriculturalists. Like the highly trained nurses and their various public health activities many of these highly trained agriculturalists were being absorbed by the U. S. Department of Agriculture and by various other state and national activities, but there still existed an enormous demand for lesser trained agriculturalists for some of those corresponding to the certified nurses and for an enormous number corresponding to those who must always do the really important work of woman in this world, namely, the mother properly trained to look after the health and comfort of her family.

In the western colleges this problem was solved by the introduction of the short courses: First, in agriculture, but more lately this short course idea has spread to practically all lines of college endeavor.

If I were to be given an opportunity to plan a training school unfettered by any rules or regulations emanating from our State Department of Education I would proceed approximately as follows:

First. I would establish a six or nine months' course in elementary nursing. I would admit to this course all young women of proper mental, physical and moral character qualifications who had passed the eighth grade in school.

This six or nine months' course would be almost entirely practical. It would embody the rudiments of practical

nursing and a course in personal hygiene. At this time I would, however, particularly emphasize the domestic science attributes of nursing.

This course would take the place of our present probation period, and the pupils who stopped with this course would be splendidly equipped to run their own homes and I venture to predict that they would soon almost supplant the present day certified and domestic nurse. At the same time they would be in full sympathy with the ideals and traditions of the more highly trained nurse.

Second. From the short course pupils I would select those who were qualified and who desired to continue with a course practically the same as our present R. N. course except that I would make it not over two or two and one-half years long including the time spent in the preliminary short term course. During this course I would relieve the pupil as far as possible from the drudgery side of nursing and I would see that she got an abundance of technical and theoretical education.

Third. Somewhat on the basis of the post-graduate scholarship plan which has proved so successful in our universities I would establish a continuation or administrative course of nursing offered as a prize to the members of the two or two and one-half year graduating class. To those pupils taking the continuation courses I would give a small but respectable remuneration. They would be our floor supervisors, our sterile and assistant operating room supervisors, our anaesthetists, our laboratory assistants and I would have them fill many other high grade and useful positions in the hospital. This course would fit the nurse for hospital administrative or public health work.

Of course, I do not expect that the plan I have outlined above will be the one actually adopted. I am, however, very thoroughly convinced that the present tendency to limit the social value of our hospitals for the sake of, or because of limiting, the supply of pupil nurses is doomed to a speedy and radical revision. I also believe that it behooves the nursing profession to have thought out and to be ready to accept a plan whereby our present day evils may be corrected without working a real hardship upon the R. N. nurse.

DEMENTIA PRAECOX

By CHARLES T. LA MOURE, M. D.

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After carefully studying the statistics of the New York State Hospitals for the Insane for the year 1920 as prepared by Dr. H. M. Pollock, we find that thirty and three-tenths per cent of all first admissions are classed as dementia praecox, or that out of a total of 7,245 first admissions 2,196 are dementia praecox cases. Of these admissions 442 were under twenty-five years of age. Only 160 of the 2,196 cases were intemperate and 889 were abstemious in the use of alcohol. Seven hundred and thirteen of these cases had no unfavorable family history. Five hundred and fifty were classified as of a normal temperamental makeup. Eleven hundred and fifty-three had a common school education, 177 a high school education and twenty-eight a college education. Only 176 of the number came from rural districts.

In 1920 only fifty-two cases of dementia praecox were discharged as recovered from all the hospitals. Nine hundred and seven cases died (36.5 per cent). Of the cases who died the average hospital life was fourteen and seven-tenths years. The average age at death was forty-nine and one-tenth years. Of the 907 deaths 313 cases died of tuberculosis.

Out of a total population of 38,294 in the New York institutions at the end of 1920 there were 22,708 cases of dementia praecox.

If this holds true in all institutions for the insane in the United States is it not time that attention was called to the fact that over half the cases of insanity cared for in all institutions are of one type, namely, dementia praecox? and should not an active campaign be started to study this disease more thoroughly in an endeavor to find some method of treatment that will be more successful than any in vogue at present? Most physicians consider all cases of dementia praecox as hopeless of recovery from the beginning and instead of starting active treatment as soon as the patient is brought to them they

relegate the patient to a large ward to be cared for with from fifty to a hundred similar cases so that as an individual the patient is submerged as it were.

Nearly thirty years ago when I began work with the insane we were taught that these cases of *dementia praecox* (called in those days primary and terminal dementias) were hopeless and that nothing could be done for them, but from some special work I was able to do with these cases from 1909 to 1912, I am firmly convinced that many more cases could recover and many more should recover than do under present methods. With no unfavorable family history in 713 of these first admissions, a common school education in 1,153 cases, and 442 of these admissions less than twenty-five years of age, and 550 classified as of a normal temperamental makeup, does it not seem as if more than fifty-two of such cases should be discharged as recovered each year? If more active treatment was carried out with these cases as well as laboratory efforts to discover the cause, there would be more recoveries. As Dr. Pollock states that the average life in the hospital of these cases is fourteen and seven-tenths years, the 22,708 cases in New York state hospitals will cost the state \$125,000,000 for their care. In the 400 state institutions in the United States there are over 116,000 cases of *dementia praecox* at the present time. With each state spending so much money yearly to care for their insane when one-half of the insane belong to one type and take one-half of this sum, or \$34,000,000 per year for care, is it not time that one of the states appropriated a few thousand dollars to investigate *dementia praecox* thoroughly and try and discover some new method of treating these cases so that more recoveries result?

Up to the present time no intensive work with these cases has been carried out to completion, mainly because the few men interested in these cases were unable to devote the necessary time from their other hospital duties and their inability to carry out their ideas due to failure to obtain the proper environment for their patients and the necessary nursing service. In other words, the men who were vitally interested in this type of case have become discouraged and given it up.

Out of twenty-one different psychoses we find that of a total population of 38,294, 22,708 were diagnosed dementia praecox in the New York state hospitals, June 30, 1920, leaving the remaining 15,586 to be divided up unevenly in twenty different classifications.

If we consider dementia praecox as a psychosis caused by a mental conflict due to an impression received in early life, which so controls the person's mind that he is unable to adapt himself to his surroundings in a normal manner, and actively seek to interest our patient in things entirely different from his former method of life and in entirely different surroundings, I am positive many of these cases would recover. The individual case must be studied carefully and methods of treatment changed from day to day. Physical as well as mental activity must be kept up to prevent deterioration. The methods used in our schools for feeble-minded could be adapted for the care of the dementia praecox with as much benefit, as with the feeble-minded we endeavor to interest each child in such work and play as will make him happy, knowing if we do not do this the child will become vicious.

We do not expect a feeble-minded child to recover, as he never had a normal brain, but although it takes years to accomplish it, much can be done to train a feeble-minded child and bring him up to a certain standard of proficiency. In the case of the dementia praecox the individual had a good mind to start with, why then should he not be given as much attention as is given the feeble-minded in training their defective brains, and not be declared hopeless after a few months' observation, and allowed to deteriorate from the lack of anything else to do?

After many years work with the insane and several years with the feeble-minded, I am firmly convinced that were we to use the same methods in training the dementia praecox as we use for training the feeble-minded, there would be many more recoveries and that those who did not recover would at least be trained to habits of cleanliness, orderliness, and industry, thus cutting down the cost of their care.

Dr. Pollock's statistics as to census of insane in custody in the United States January 1, 1920, states that there were 232,680 patients in custody at that date. If we take one-half of this total we have 116,340, which is approximately the number of cases of dementia praecox cared for in institutions at an annual expense of over \$34,000,000. The cure and improvement of only a small proportion of these cases would more than compensate for the expense of special investigation and study.

With such a large number of first admissions to the state hospitals each year of cases of dementia praecox (in New York State—2,196 cases in 1920, or 30.3 per cent) enough to fill the average sized state hospital, would it not be feasible to set aside one state hospital for the intensive study and treatment of this form of insanity and then transfer the younger recent admissions to this hospital devoted to the special study of such cases?

EDITORIAL

He had but too good reason to be uneasy. His wife had, during two or three days, been poorly; and on the preceding evening grave symptoms had appeared. Sir Thomas Millington, who was physician in ordinary to the king, thought that she had the measles. But Radcliffe, who, with coarse manners and little book learning, had raised himself to the first practice in London chiefly by his rare skill in diagnostics, uttered the more alarming words, small pox. That disease over which science has since achieved a succession of glorious and beneficent victories, was then the most terrible of all the ministers of death. The havoc of the plague had been far more rapid: but the plague had visited our shores only once or twice within living memory; and small pox was always present, filling the churchyards with corpses, tormenting with constant fears all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheeks of the betrothed maiden objects of horror to the lover. Towards the end of the year 1694, this pestilence was more than usually severe. At length the infection spread to the palace, and reached the young and blooming Queen. She received the intimation of her danger with true greatness of soul. She gave orders that every lady of her bedchamber, every maid of honour, nay, every menial servant, who had not had the small pox, should instantly leave Kensington House. She locked herself up during a short time in her closet, burned some papers, arranged others, and then calmly awaited her fate.

During two or three days there were many alternations of hope and fear. The physicians contradicted each other and themselves in a way which sufficiently indicates the state of medical science in that age. The disease was measles; it was scarlet fever; it was spotted fever; it was erysipelas. At one moment some symptoms, which in truth showed that the case was almost hopeless, were hailed as indications of returning health. At length all doubt was over. Radcliffe's opinion proved to be right. It was plain that the Queen was sinking under small pox of the most malignant type.

THOMAS BABINGTON MACAULAY.

The History of England.

The Evolution of a Board of Health With this issue the ANNALS introduces a history of the Department of Health of the City of Albany from its beginnings in 1859 to the close of 1921. To Dr. Vander Veer, who was an active participant in the development of this important municipal enterprise, the readers of the ANNALS owe a debt of gratitude for the heavy work of compilation and of exegesis of the records. Even his abstract is of such length as to necessitate serial publication, but this will not detract from its value, and sustained interest may be predicated for a chronicle which presents a humorous as well as a scientific view of the inevitable struggle of the few to overcome popular prejudice, and to induce a community, against its will, to secure for itself the blessings of health and longevity. The narrative begins with an epidemic of "sore throat" and traces the various battles with this disease through the half century which terminated with the Schick test and the practical elimination of the dangers of diphtheria. It seemed a simple question of pathology, but like many other apparently easy problems, soon penetrated the mysteries of civilization and exposed the almost universal ignorance of all principles of sanitation. Professor Staley of Union College, when appointed in the eighties to devise a scheme of sewage for Schenectady, is said to have remarked that each back yard in that city contained a vault and a well, and it was difficult to determine which was which. His engineering perplexities were not unlike those of Albany. Water mains had been constructed of hollow logs, and some of these have been retrieved during the last ten years. Dr. Vander Veer recalls the efforts and the steps which eventuated in the existing filtration plant and its supply of potable water. He recalls the drainage of residences upon the surface or into the soil, and points with satisfaction to the great intercepting sewer which relieves the Hudson River of contamination from the city. Attention may be directed parenthetically to the remissness of neighboring communities, as the retiring Health Officer, Dr. Sautter, clearly indicated, in relief of this menacing abuse of riparian privilege. The Capitol City has shown the way to preserve the grand

historic river, which should be permitted to flow unpolluted from the mountains to the sea.

It was not until 1878 that a "City Physician" was appointed to "encourage reports from physicians and surgeons pertaining to health questions," and this was the unostentatious birth of the great department which now invades our homes, our pockets and our case records, and has created out of the quiet, unassuming, family practitioner, a propagandist of public morality and public health.

The growth of official medicine has not been as simple as this outline seems to show and the difficulties of the pioneers, as revealed in Dr. Vander Veer's synopsis, must be read to be appreciated. There were objections and objectors, and, perhaps, there were politics, though of this no hint is given. It appears that at one time the purchase of one quart of ink for sixty cents was the subject of debate.

Probably the experience of Albany did not differ from that of other cities, but there has come to light no such sketch as that prepared by Dr. Vander Veer. His outline is of absorbing interest as a contribution to history, illustrating the orderly arrangement of fact upon fact until the completed structure is revealed. It is an irrefutable exposition of the paramountcy of preventive medicine, which, of course, ceases to be medicine when it becomes preventive.

MEDICINE

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INDUSTRIAL MEDICINE**THE ACTINIC RAY**A PRELIMINARY PAPER GIVING SOME OF THE EARLY HISTORY
OF THE ACTINIC RAY

By C. B. WITTER, M. D.

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The first actual demonstration of there being an ultra-violet region in the spectrum was made by Ritter and by Wollaston who showed that the blackening of the silver chloride took place quite readily in the regions of the spectrum beyond the visible limit in the violet. In 1842 E. Becquerel succeeded in proving the presence of the Fraunhofer absorption lines in this region of the solar spectrum, by projecting it on strips of paper which were coated with silver chloride; in this way he photographed it, and detected the presence of a long ultra-violet region which contained many Fraunhofer lines. Glass readily absorbs these rays when they are of shorter wave length than about 3300 Angstrom units, and therefore more transparent substances must be made use of for lenses and prisms. Stokes has shown that quartz and Iceland spar are very transparent to these rays of short wave length, quartz being the better of the two, because Iceland spar absorbs all wave lengths shorter than 2150 units. With an apparatus fitted with quartz lenses and prisms it is perfectly easy to reach as far as $\lambda = 1900 \text{ A. U.}$, provided the rays have not far to travel through the air, as it has been found that moderately thick layers of air exert a powerful absorption upon these rays.

The extension of Angstrom's Normal Map of the solar spectrum and the mapping of the ultra-violet region was carried out by Cornu, and was published in part in 1874, and the remainder in 1880.

In 1914 the experimental work in the ultra-violet was more simple, owing to the fact that the ordinary photographic plates are sensitive to these rays, so that it was an easy matter to work in this region, either with quartz prism apparatus or with the concave grating. In the first case, of course, for wave length determinations, it was necessary to use a comparison spectrum where lines have previously been measured. It is necessary that all lenses and prisms used in an apparatus for the ultra-violet should be made of quartz on account of the absorption exerted upon these rays by glass. It is generally stated that quartz is transparent to

rays of as short a wave length as $\lambda = 1850 \text{ \AA}$, but this depends very much upon the thickness of the quartz traversed by the rays.

The absorptive power of quartz has been investigated by Schumann with the following results: He made use of an apparatus with a single quartz prism of 6° degrees refracting angle, and plano convex lenses of 150 mm. focal length; the mean thickness of quartz traversed by the rays was 21 mm.

We now know sunlight consists of more than merely the visible or "light" rays. The longest rays that are visible are the red rays but beyond them are the longer invisible infra red or heat waves which comprise all radiant heat. Beyond the infra red rays are the still longer rays discovered in 1877 by Dr. Hertz, now known as the Hertzian waves. These rays are also invisible and on them depend that modern scientific development, the wireless telegraph. The shortest visible rays are the blue and violet and beyond them are the shorter invisible ultra-violet or chemical rays. Beyond them again are to be found the still shorter Roentgen rays and the radium gamma rays. The ultra-violet rays are present in large quantities in sunlight at high altitudes of several thousand feet. At ordinary levels of the earth's surface however, they are present only to a very small degree, because of the dust particles and moisture in the air which filter them out of the sun's rays and absorb them.

Violet colored glass through which ordinary electric light or spark is projected does not produce any actinic ultra-violet light effects.

Ultra violet light will kill bacteria within five minutes as proved by Bovie of Harvard and by Beige of the University of Illinois. The two factors we have to deal with then are the generation of the actinic ray, and the reaction to the patient.

The actinic ray manifests four important effects: (1) photochemical, (2) ionic, (3) fluorescent, (4) biologic. The biologic is of most importance to the clinician. The actinic ray has a biological effect as the result of local activity and general systemic action. The local activity ranges from a slight capillary engorgement to an exudative inflammation; therefore, a desired therapeutic result must be determined in each case in order that the local reaction may be carried to that point where maximum benefit will result from the treatment. Non-intensive doses applied for a short time yield a maximum of constructive cell activity. Intensive doses applied for a longer time produce stimulative changes in the deeper layers and superficial changes leading to cellular death. The indications for the estimate of the necessary dosage in any given condition is due to the cellular pathology of the part. Therefore if the condition is one of a pyogenic organism, then the first dose indicated is for the destruction of the organism and for the repair of the cellular damage that the organism may have excited, namely, a bactericidal effect with cellular stimulation to the point of tissue repair. As for systemic effect, the time and intensity depend upon the reaction sought, as the actinic ray produces changes in the quality of the blood, a leukopenia and subsequent leukocytosis. Certain results are due to physiologic chemical changes in the cells at the

surface exposed to treatment; and the cellular changes reflect their activity into the venous outflow of blood after taking up the necessary biological element from the arterial supply.

There are three types of reaction of therapeutic value to the clinician:

- (1) Stimulative erythema.
- (2) Regenerative erythema.
- (3) Destructive erythema.

A stimulative erythema results from an exposure that produces a faint blush. It is accompanied by a minimum of cellular protoplasmic change and by a good share of capillary engorgement. It is bactericidal and useful for systemic treatment in the form of general bodily application.

Regenerative erythema is a marked hyperemic reaction, carried to the point where it will produce a maximum redness just short of blistering. This possesses the characteristics of stimulation and bactericidal activity incident to the faint blush just discernible, and in addition gives a maximum capillary reaction so as to furnish also a regenerative capacity to the area exposed. Moderate pigmentation follows the regenerative hyperemic exposure. The indications for the regenerative hyperemic reaction include practically all of the dermopathies associated with inflammation, all the atrophic dermopathies, the parasitic affections of the skin, disorders of the skin glands and all intra-oral therapy where it is desired to exert a bactericidal effect on an infected mucous membrane surface, including pyogenic invasions of the tonsils, alveodental necrosis and abscesses and other mucosal and intra-mucosal conditions characterized by inflammation.

Destructive erythema is a reaction so pronounced as to occasion vesication. It produces in succession, the stimulative blush, then the regenerative hyperemia and goes on further, affecting the protoplasm of the cells, occasioning a marked exudation and resulting ultimately in blister formation, the exudate raising the superficially destroyed cellular layer. The indications for destructive erythema are those skin affections in which hyperplastic and hypertrophic lesions abound. In this type of pathology the destructive superficial action gradually levels the involved area, and at the same time stimulates and regenerates the adjacent parts so as to preclude any spreading of the involvement and any tissue damage carried by continuity.

WHEN ARE DISABILITIES OF THE BACK ARISING OUT OF PATHOLOGICAL CONDITIONS REPORTABLE ACCIDENTS?*

By RUFUS B. CRAIN, M. D. and BENJAMIN J. SLATER, B. S., M. D.

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Of all the problems that confront the industrial surgeon there is none more difficult to handle than the familiar "strained back." Osgood (1), in his article read before the meeting of industrial surgeons at Atlantic City in June, 1919, has shown a very proper conception of the perplexity of the situation, and his article represents as good a medical résumé of the subject as may be found.

Almost every day the industrial surgeon is consulted by a workman who says, "I believe I have strained my back." Broadly speaking, such cases fall into two groups, the first of which is composed of strains which date from a definite experience, such as a slip or a fall, or the lifting of some unusually heavy object. These cases usually conform to our conception of what is meant by an accident as set forth by the Workmen's Compensation Law of New York State. When a workman is able to point to a particular trauma at a certain time of the day, which is unusual and not a part of his routine work, there is no problem involved. The case is always reportable, provided there is loss of time or more than first-aid treatment. The second class, however, is far more numerous and difficult to handle. Cases in this group differ from those in the first in that they are referable to no definite time or unusual experience. The workman presents himself for an examination complaining of "lumbago" or "rheumatism," with or without some rise in temperature. His usual statement is, "Doc, I believe I have strained myself lifting boxes in Department X."

"When did it happen?"

"Two or three weeks ago, I can't say exactly when."

"Did anything unusual happen?"

"No, I was simply stooping over (or lifting some boxes) and felt no pain at the time."

"When did the pain develop?"

"It came on today."

Further questioning will generally reveal the fact that the workman was doing his regular work in a routine manner without the occurrence of a single incident which might be thought to be apart from the ordinary routine of his work. We have found that the onset in this particular type of case is not so dramatic as that in class one. The consequences, however, may be, and frequently are, quite as serious. It was formerly our custom to report all of these cases as accidents. They have, however, become so serious and so numerous, and have shown such a large variety

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of etiological factors, when carefully studied, that we now hesitate before reporting them as accidents. Fortunately, under the existing state compensation law, we are permitted ten days in which to report an accident, and it is during this time that we investigate through the workman's department the circumstances attending the disability and make a thorough medical examination of the case, including X-ray examination, Wassermann, and a thorough physical examination.

It is our opinion that of this latter type of case each has developed from some focus of infection. Only occasionally have we been unable to demonstrate such a focus. Certainly, nine cases out of ten are, in our opinion, not reportable accidents within the meaning of the Workmen's Compensation Law. The most common causes in this group of cases have been thought to be faulty posture, infected teeth or tonsils, syphilis, tuberculosis, weak feet, etc. Indeed, it is really surprising to find the number of cases of chronic disease which are encountered, in which a workman feels that his condition is due to some slight injury, and it is in the handling of these chronic diseases that we are confronted with our most serious problems. Often the only complaint which a workman will have is a strained back, and upon thorough examination some other condition will be discovered. It is not uncommon to hear a workman say, "I have not been so well since I was hurt," when he is really suffering from advanced tuberculosis, syphilis, or some other chronic disease. A great many workmen are entirely unfamiliar with the Workmen's Compensation Law and regard themselves as victims of an accident without any consideration of what is really wrong with them, or of the manner in which their disability has developed. The following three cases taken from a much larger group are illustrative of the points under discussion:

CASE I

L. H., female, 37 years of age, and weighing 140 pounds, at 3 p.m., on April 6, 1918, in the course of her ordinary employment, reached to pick up from a basket placed on the floor a small object weighing about two ounces. This was a part of her routine work. On this particular occasion, she felt something slip in her back, became unable to move her right leg, and three or four days later became almost completely disabled. She did not slip or fall, and there appeared to be nothing unusual about the manner in which her disability developed. The case was reported as a right sacroiliac strain, and the woman was referred to a specialist who applied a cast and, later, a brace. Her case dragged along for two years, during the greater part of which period she did not work. In her particular case, it seemed as though there was some malingering, inasmuch as she was often seen to walk in a perfectly normal manner, whereas, before the Industrial Commission, she would appear almost a complete invalid. A contest was raised, after two years, that an accident was never sustained. The Industrial Commission closed the case on the ground that there was no accident.

The interesting feature, which this case illustrates, is that an employee may develop a disabled condition of the back which is not a reportable accident and should not be reported as such.

CASE II

E. M., male, 46 years of age, and weighing 186 pounds, on December 12, 1918, leaned forward in the course of his ordinary employment and lifted from one stall to another a jar of liquid weighing about 25 pounds. The vertical lift was two feet, and the horizontal about one and one-half feet. He had been performing this particular operation for many years, but on this particular occasion was seized with a terrific pain in the region of the right sacro-iliac joint, became incapacitated, and was taken home. There is no record, in this case, of the man's having slipped or fallen, or of his having been struck. He was apparently performing a routine operation in a routine way. His case was reported as a sacro iliac strain. During the course of treatment by a specialist, he developed a phlegmasia alba dolens and, later, cystitis and varicose ulcers of the right leg. He has drawn compensation at intervals since the period of injury. While the final award has not been made in this case, it is easy to see that the amount involved is very considerable, and it is difficult to understand how this can be called an accident even though it was so ruled by the Industrial Commission.

This case differs from that of L. H. in only one respect, namely, that the weights lifted were different. Nevertheless, very considerable compensation has been paid and the case is still on the calendar. It is not uncommon to have three or four such cases a month—cases in which there is a sudden seizure in the region of the sacro-iliac joints with disability for a short time. It is not often, however, that cases are as prolonged as was the case of E. M., but they are occasionally seen. The third case is somewhat different from the two which we have already described.

CASE III

G. A., male, 36 years old, weighing 146 pounds, was reported to have sustained an accident at 4 p.m. on January 4, 1921, in the following manner: Previous to the accident he was transferred from inside machine work to the yard. The weather was rather severe and at this particular time there were high winds. On the day mentioned, while he, with three other men, was using a crowbar to roll a heavy pipe into place, he felt a sudden pain below the angle of the left scapula. He was pulling rather hard at the crowbar, but was not using his full strength nor working harder or in a more strained position than his assistants. On the following day he did not report for work, and on visiting his home we found that his temperature was 102 degrees, and his pulse 116. He was perspiring profusely. His temperature gradually came down and in three weeks he came back to work. The only local physical sign was tenderness in the angle of the scapula. There was no redness and no swelling. Motion of the right arm was limited but only in so far as the scapular action was brought into play. It was evident that this was not altogether an accident, but just how much of the syndrome was accident and how much disease, is very difficult to say. The patient demanded a diagnosis, and when he was informed that it was "lumbago" he remarked, "Doc, I cannot collect on an accident policy for that." The case was reported as

an accident and so carried by the Industrial Commission even though we felt that disease played perhaps the most prominent role.

In this case we have a disabled back due to an acute febrile condition. In all probability the strain was nothing more than a coincidence, yet this case was reported as an accident. During certain seasons of the year, mostly in the spring and autumn when there are frequent changes in the weather, we have "crops" of cases similar to the last two. Following an abrupt change in the weather from warmer to colder we are always certain to find such cases.

In each of the three cases cited, the employee felt that he was hurt and was willing to hold the employer responsible. Indeed, there appears to be a growing tendency on the part of employees to hold the employer responsible for all manner of cases.

QUESTIONNAIRE REGARDING INJURY

Name.....
 Address..... Dept.....
 How long with company? When did accident occur?
 What happened?
 Is this your regular work?.....
 Did you slip or fall, or were you struck?.....
 If you lifted an object, what was the weight?
 Did you have any assistance?.....
 Witnesses to accident.....
 Did anything unusual happen which you believe caused this injury?.....
 Whom do you blame?.....
 Have you ever had any injuries or accidents before?.....
 Did you report accident to anyone?
 Date..... M.D.

FIGURE 1

A review of Bulletin 272 of the U. S. Bureau of Labor Statistics (2), covering compensation cases in various states of the United States and in Canada, shows the greatest diversity of opinion in parallel cases as to what constitutes an accident, and how and when subsequent disease or death may be considered a result of accident. The tendency seems to be gradually to broaden the classification of conditions for which compensation may be paid. Out of the confusion which has arisen, as to what are really reportable injuries, we have adopted the following rule of action: As soon as possible after the injury, real or imaginary, we fill in a blank similar to the questionnaire shown in Figure 1. This will tell exactly

what happened, and it will later be found of very great value to have recorded the exact statement of what actually happened as given by the employee at the very earliest moment following examination by the doctor. Lacking this clear, definite statement from the patient, the industrial physician will find himself at a very great disadvantage when presenting the case before the Industrial Commission. The borderline between accident and disease is so indefinitely drawn that, when a contest is arranged and the employee has been instructed by his attorney, he may easily, intentionally or unintentionally, by inserting a few simple words such as "slipped" or "fell," change the entire complexion of the case.

It seems highly desirable that the employer, before assuming responsibility for the many questionable injuries, should request a hearing before the Industrial Commission in order to determine the responsibility in the particular case in question. This is a long, tedious and tiresome method, and one which we seldom employ because of the fact that it tends to destroy the confidence of the patient in the physician if there is any contest before treatment is undertaken.

The nature of the case often makes it difficult or impossible to request a hearing before the Industrial Commission, as in the instance of G. A. (*vide supra*). Because of the fact that the physician who has done much industrial work will not care to go frequently before the Commission to testify, it is not desirable to hold too many hearings, since they tend to break down the close co-operation which should exist between a physician and his patient. There is also a great deal of difficulty due to the fact that it may take weeks or months for the Commission to arrive at a decision after the case has been given a hearing. During this time the patient is without treatment unless the employer wishes to assume responsibility before the decision is made. If he adopts this method, it really offsets the purpose of having a hearing.

In answer to the question, "When are disabilities of the back arising out of pathological conditions called reportable accidents?" we are frank to admit that in many instances we are unable to decide. It is our belief, however, that many cases *now* reported as accidents need not be so carried. We feel that, by the application of the methods already outlined, we have been able to diminish the number of reportable cases. Inasmuch as in this state the power of determining what is an accident lies in the hands of the Industrial Commission, the logical thing to do seems to be to bring the case early to the attention of the Commission and ask for a decision. The physician who has at hand a careful detailed record of the events attending the so-called "accident," together with his physical findings, will always be in a better position to furnish satisfactory testimony before the Commission than the physicians who fail to have such a record. When an employee has gone on record as having stated that the disability developed in this or that way, he is not so apt to change his mind later, especially if he knows that his physician has a typewritten sheet at hand on which is contained the statement which he made at the time of injury.

It is only reasonable to feel that such a statement must have some weight before the Commission, in view of the fact that it was taken at the time of the injury.

Before reporting any borderline cases, however, it is of greatest benefit to have a thorough physical examination and laboratory study of the case. As pointed out above, these studies will frequently reveal some chronic condition as the underlying cause of the disability. It is much more satisfactory and conclusive to have at hand the information which these studies bring to light, than to report a borderline case to the Commission as an accident and be compelled to furnish such information at a later date.

Under the existing compensation law in New York State, the employer will gradually be compelled to have a complete physical survey of all new employees. There would be many fewer deaths from syphilis aggravated by back injury if there were more routine Wasserman tests; X-ray studies of the chest would help to reveal pulmonary tuberculosis; and urine examinations would disclose diabetes and nephritis. These chronic diseases contribute to the greatest number of death claims in our experience. Each one, we believe, could have been avoided if our preliminary entrance examination had been sufficiently thorough, and often enough repeated.

If the employer will, by job analysis, inform the medical department what is expected from a new employee, and will supply the department with adequate personnel, laboratories and other facilities, he may hope to cut down the number of death claims and borderline back injuries. In this way only can he succeed in reducing these cases to a minimum. Laboratory examinations can necessarily be done more cheaply and more effectively in great numbers of cases than they can be done by a physician working on an individual case. It is in such work as this that the industrial physician can make his greatest contribution to the employer, the employee, and the community.

BIBLIOGRAPHY

1. OSGOOD, R. B.: Back Strain—An Accident or a Disease. *Proc. Fourth Ann. Meeting Am. Assn. Indust. Physicians and Surgeons*, June 9, 1919, p. 88.
2. CLARK, L. D., and FRINCKE, M. C., Jr.: Workmen's Compensation Legislation of the United States and Canada. *U. S. Bur. Labor Statis., Bull. 272*, Jan., 1921, pp 106-135.

APPELLATE DIVISION DECISIONS

By A. N. CROUCH, M. D.

Medical Director, American Locomotive Company, Schenectady, N. Y.

ELIZABETH VAN GORDON VS. HIRES CONDENSED MILK CO.

Died from tuberculosis within one year after accident, which is held to have been a contributing cause of death.

This case was decided by the Appellate Division of the Supreme Court, November, 1920.

The workman Van Gordon in May, 1918, was working on a ladder which he had mounted to a height of twenty feet. The ladder tipped over

causing him to fall. It is stated that he strained his left side, back and ankle and that some of his short ribs were fractured and loosened. He partly recovered and did some work after his partial recovery but did not completely recover his strength or previous health. In about one year he developed tuberculosis of right lung from which he died October, 1919. It was held without dispute that tubercular germs inhabit the human system generally, that they were present in the injured man's system in an incipient or latent form at the time of the accident. The court concluded that the injury lowered the man's vitality, lessened his resisting power and was thereby a contributing cause of his death.

ANNA GRAFFE AND MINOR CHILDREN VS. ART COLOR PRINTING CO.

Employee died of fracture of skull from falling on cement floor. He had endocarditis, arteriosclerosis and nephritis. He worked in very bad air and floor was slippery. Presumption that accident arose from employment. Award affirmed.

The decision in above case was handed down by Appellate Division of the Supreme Court, case being argued March, 1920.

In November, 1917, Felix Graffe was working on the night shift for the Art Color Printing Co. The men shut down at 10 p.m., and went out to lunch; Graffe going with them. They returned about 12:45 p.m., and they saw Graffe lying on his back between two rolls of paper. His skull was fractured; the floor where he fell was concrete; he was taken to the hospital where he died in a few hours.

An award was made to his widow and minor children; later this award was reversed and still later, by a divided vote, the Commission reversed its reversal and reinstated its award. The employer through its insurance carrier appealed on the ground that there was no proof of accident. The record in this case disclosed the facts that there were a number of conditions with this man's employment which might have caused him to fall.

There was grease upon the floor about his machine. Several rolls of paper were lying around over which he could have tripped; the place was poorly lighted; there were present noxious, enervating pernicious odor and gases and close and tepid atmosphere, this condition of the air being purposely maintained as a necessity in the color stamping process.

All of these conditions were held to have been incident to his employment and arising out of same and in lieu of the fact that the man had endocarditis, arteriosclerosis and nephritis, the conditions under which he worked were held to have been the probable cause of his death. The award was unanimously affirmed.

HENRY NEUBERGER VS. 3RD AVE. RAILWAY CO.

Claimant became dizzy and either as the result of falling or in an effort to keep himself from falling he placed his hands on a hot stove and sustained serious burns. It was shown that the claimant had previously suffered similar dizzy spells and that same was a "characteristic malady" inherent in the claimant which overtook him at intervals without reference to his employment.

Claim was disallowed as not arising out of his employment.

BILLS INTRODUCED IN NEW YORK LEGISLATURE

BY A. N. CROUCH, M. D.

The following bills referring to Workmen's Compensation Law have been entered in the Legislature:

Senate Introductory No. 7 by Mr. Downing, eliminating insurance carriers as far as Workmen's Compensation is concerned and limiting compensation carriers to the State fund and self insurers.

Senate Introductory No. 72 by Mr. Downing, changing the number of weeks for permanent partial disability and adding all compensation paid up to the time of an award for permanent partial disability. This act changes compensation for loss of first phalanx from one-half to two-thirds. Increases the schedule for loss of use of hand on account of loss of thumb and one finger. Increases the schedule for loss of use of eye from 128 to 156 weeks. Adds loss of hearing, one ear, 75 weeks; both, 200 weeks. Also cuts out the use of mechanical aids in determining loss of sight.

Assembly bill Introductory No. 85 by Mr. Schoffel is a duplicate of the Senate bill.

Assembly bill Introductory No. 2 by Mr. Antin is the same as Senate Introductory No. 72 except leaves out additional compensation during period before award is made determining permanent partial disability and also omits increased schedule for loss of use of hand and foot and the use of mechanical aids in determining loss of vision.

Assembly bill Introductory No. 3 by Mr. Antin changes waiting period from 14 to 7 days and provides compensation for full period if injured is out more than seven days.

Assembly bill Introductory No. 74 by Mr. Patrzykowski is the same as Mr. Antin's bill Introductory No. 3 except that it makes the waiting period five days.

Senate Introductory No. 69 by Mr. Downing provides a penalty of fine or imprisonment or both for failure to secure compensation.

Assembly bill Introductory No. 83 by Mr. Roseman adds to the definition of employee "one who is engaged in traveling to and from the place of employment."

Senate Introductory No. 112 by Mr. Draper adds to liability for compensation in relation to occupational diseases any disease or sickness due to any of the hazardous employments enumerated.

SURGERY

Edited by ARTHUR W. ELTING, M. D.

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RECONSTRUCTION OF THE COMMON BILE DUCT

By A. J. WALTON

British Journal of Surgery, October, 1921

The reconstruction of the common bile duct constitutes one of the most difficult problems in surgery. It is of great value in cases of stricture or complete stenosis of the duct, such as in (1) injury to or ligation of the duct at operation, (2) chronic pancreatitis, (3) carcinoma of the head of the pancreas, (4) obstruction to the common duct by scar tissue, either within or without the lumen of the duct, etc.

Injury to the common duct during cholecystectomy operations is probably more common than is generally supposed. In cases where there are many adhesions about the base of the gall bladder or where the cystic duct has been scarred and shortened by inflammatory changes, traction on the gall bladder in the course of an operation readily angulates the common duct in the form of a tent so that it may easily be mistaken for the cystic duct. Ligation and section of such an angulated common duct has frequently occurred, the accident sometimes being discovered at once, but often the discovery of the condition being made only at a second operation or at autopsy. In spite of the most painstaking precautions injury to the common duct may occur because of anomalous conditions of the bile ducts.

In stenosis of the common bile duct from operative injury, cholecystenterostomy or cholecystgastrostomy is impossible because the gall bladder has already been removed, so that it is necessary to devise some method to conduct the bile directly from the upper end of the stenosed duct into the duodenum. In certain cases of chronic pancreatitis, carcinoma of the head of the pancreas, primary carcinoma of the common duct or gall bladder, or both combined, it is also impossible to utilize the gall bladder for the anastomosis, and a method of leading the bile from the upper portion of the common bile duct or from the common hepatic duct into the duodenum is essential. The author has devised an operation to form a new common bile duct, the main steps being as follows:

The field of operation is exposed through a right rectus incision. A flap involving the full thickness of the wall of the duodenum is cut in the long axis of the bowel, from its anterior surface, and this flap is turned

downward. This flap is made sufficiently long to reach without tension from its attachment on the duodenum to the common or hepatic duct above the point of obstruction. The opening in the duodenum is now closed save for an aperture just large enough to admit a rubber tube. In the open end of the common duct above the point of obstruction is placed the largest rubber tube which can be introduced, and the lower end of this tube is passed into the duodenum. The flap cut from the duodenal wall is then closed around this rubber tube, the latter being fixed in position by means of a few plain catgut sutures. As these sutures absorb, the rubber tube passes into the duodenum leaving a new bile duct which, being lined with mucous membrane, will not stricture or contract and which is impervious to the action of bile.

The author reports six cases in which he has used the technique described above, with four recoveries and two deaths. Both the deaths were due to the condition for which operation was performed, in one case a carcinoma of the common duct, and in the other an advanced chronic pancreatitis, so that he concludes that the results of the operation are on the whole satisfactory.

H. H. H.

THE OPERATIVE TREATMENT OF CLOSED FRACTURES OF THE LONG BONES BY METAL BANDS

By E. GERALD STANLEY and JEAN GATELLIER

British Journal of Surgery, October, 1921

In the present article the authors present the results of research into the immediate and remote effects obtained by the use of Parham's bands, applied alone in cases of oblique fractures, but associated with plates of metal or bone in transverse fractures.

In oblique fractures, Parham bands are superior to other methods of fixation such as Lane plates, bone grafts, etc., because of (1) the much greater ease and simplicity of applying them, and (2) the greater certainty that the reduction of the fracture will be perfectly maintained. To obtain this second result it is much better to use two bands, one toward either end of the oblique fracture, than a single band. In comminuted fractures, also, Parham bands will draw the fragments together, whereas attempts to use metal plates will often result in still further comminution of the fragments without maintaining a reduction. Parham bands are superior to wiring of the fragments since the bands are more secure than wire, do less damage to the periosteum, and are less irritative to the surrounding soft parts.

By the use of Parham bands early mobilization of the fractured limbs is secured. The time of mobilization varies with the bone involved, ranging from two days in fractures of the forearm, to a minimum of fifty days in fractures of the femur.

Studies of the author's series of cases treated by the employment of Parham bands alone show the following results:

- (a) A delay in consolidation hardly appreciable even if it exists;
- (b) Complete absence of necrosis at the point of contact of the bands;
- (c) A callus formation which is regular, reduced to a minimum and completely surrounding the bands;
- (d) An absence of pain, and perfect toleration of the bands by the tissues;
- (e) Absence of rust or toxic action by organic iron salts.

In using metal plates to maintain the reduction of a fracture it is better to hold the plate in position by means of Parham bands than by means of screws. The bands do much less damage to the bone and periosteum than do the screws, and moreover in using the latter any slight error in placing the drill holes in the bone will lead to imperfect coaptation of the fragments. In several cases in which the plates were fixed with Parham bands rather than screws, accidents have happened such as slipping or breaking of the bands, but such misadventures can be obviated by the exercise of greater care.

In fractures of the femur, where great strain comes on the fracture, it is better to use two plates rather than one, both being fixed in position by four Parham bands, two bands being placed on each side of the fracture. These plates should not be placed opposite to each other on the bone, but should be placed one in the antero-posterior axis of the bone, the other in the lateral axis. The use of two plates, placed in opposing axes, adds greatly to the stability over a fracture with a single plate.

Bone splints may be used in place of metal plates, these again being held in place better by Parham bands than by screws. The authors used heterogeneous instead of homogeneous bone plates. They found that the bone plates had no advantage over metal plates, and two great disadvantages: first, that the bone plates lacked the strength of the metal ones and were apt to break; and, second, that the use of bone plates added greatly to the difficulty of operation.

The authors then give abstracts of the histories of eleven cases in which Parham bands, with or without metal plates, have been used. The last four of these cases are reported to show the various accidents which may occur from faulty technique.

In conclusion they state:

"(1) The simplicity and the ease of application of the Parham-Martin bands establishes their superiority for closed fractures to all other means of operative splinting. Their application is carried out with the minimum of operative manipulation, and perfect apposition is ensured and maintained. They are better than wire for encircling the bone.

"(2) We have been able to observe the remote results of fractures thus treated in cases where we have been obliged to reoperate, and in a series of radiographs. They show that the objections made to metallic osteosynthesis, which are very real, cannot be applied to the use of Parham's

bands. The consolidation is certainly not delayed, there is no necrosis at the point of contact of the bands, and it is surrounded by callus. Furthermore, any organic iron salts that may be formed have no toxic effect on the tissues; the callus is not excessive in quantity, and is frequently reduced to a minimum. Lastly, the bands very rarely give trouble from their presence and may with confidence be left buried.

“(3) Transverse fractures require to be treated with metal or bone plates (or splints) encircled by the bands. Our results with bone plates have been very disappointing, though we admit Nageotte’s principles in theory, and believe the work of Gallic and Robertson to be most valuable, though needing clinical conformation to recent fractures.”

NOTE.—In the above article the authors have lost sight of one fact, namely, that the introduction of any foreign body into a fracture retards union, and that, in a general way, the greater the volume of foreign material, the slower the union. Thus, obviously, two Parham bands should not be used when one will suffice, and the application of two metal plates instead of one cannot but retard union. The use of Parham bands instead of screws to fix metal or bone plates is also a somewhat debateable procedure.

H. H. H.

PATHOLOGY AND BACTERIOLOGY

Edited by VICTOR C. JACOBSON, M. D.

ASSOCIATE EDITOR
LAWRENCE J. EARLY, M. D.PATHOLOGICAL CONFERENCE HELD AT THE
ALBANY HOSPITAL

January 20, 1922

Reported by HAROLD E. MARDEN, M. D.

The second monthly Pathological Conference at the Albany Hospital was held on January 20, 1922. About one hundred attended. Two cases were presented, the clinical features being reviewed by Dr. A. H. Elting. Dr. V. C. Jacobson presented the postmortem findings. In addition two rather unusual surgical specimens were demonstrated.

CASE I

Male, white, adult. Age, 77 years. American.

Chief Complaint.—Gangrene in right foot.

Past History.—None available.

Present Illness.—Patient had his left leg amputated above the knee three years ago for gangrene. His memory for recent events is impaired, so that it is difficult to be certain of the date of onset of his present illness. About the middle of August, 1921, he noticed a little blister on his right big toe at the phalangeo-metatarsal articulation. This turned dark and began to enlarge, at the same time giving him considerable pain. Many kinds of ointments were used but none seemed to give relief, so he was brought to the hospital.

Physical Examination.—The patient is a fairly well nourished old man whose left leg had been amputated just above the knee. All superficial arteries are palpable and the radials are very hard and rigid. Teeth are fair, tongue is coated. Chest is emphysematous and breathing is quite rapid. The heart is enlarged and the sounds are difficult to hear. The right leg is thin and emaciated. On the right foot on the medial surface of the phalangeo-metatarsal joint of the big toe is a rounded gangrenous area about the size of a quarter, from which there is a slight discharge. It is dark, almost black, and surrounded by a red inflamed area. The whole foot is quite swollen and pulsation in the dorsalis pedis artery cannot be detected, although there is pulsation in the popliteal artery. Abdomen is negative. Urine on one examination is dark amber, s.g., 1.026, alkaline, albumen-negative, sugar-negative; sediment, contains triple and amorphous phosphates. Temperature showed much excursion, 101 degrees at entrance with fluctuation to normal in the morning, and to 100 degrees in the afternoon. Pulse rate, 70 to 100 per minute.

Clinical Course.—On the third day he began to pick at the bed clothes. He would not keep covered, would try to get out of bed and was irrational. He was transferred to Ward F.

On Ward F, his blood pressure was 120 80, pulse, irregular and weak. His left pupil was wider than the right and both were dilated. Abdomen was large and tense. Heart had a gallop rhythm. Lungs showed a few coarse moist rales in the lower axillary areas. Respirations were panting and shallow with coarse bronchial breathing below the right clavicle and slightly similar breathing over left chest anteriorly. There was much pulmonary emphysema. He continued very weak, vomited his food and expectorated much brownish mucus. His temperature was 97 to 98 degrees, pulse was 100 to 104, urine contained a rare pus cell, trace of albumen, no sugar. Death occurred on September 10, or seven days after admission.

Dr. Elting took up the various systems separately, naming the probable lesions in each, in the order of their relative importance in determining the patient's condition at the time of entrance to the hospital:

(1) Arterial system: (a) Obliterating endarteritis of the cerebral arteries, the peripheral arteries, and possibly of the coronary arteries.

(2) Heart: (a) Chronic myocarditis; (b) possibly chronic endocarditis with an acute exacerbation.

(3) Lungs: (a) Terminal broncho-pneumonia; (b) hypostatic congestion; (c) emphysema.

(4) (a) Generalized chronic passive congestion of the splanchnic viscera; (b) cerebral edema.

(5) Kidneys: Probably but little abnormal.

The most important conditions found at the postmortem examination were: (1) Acute bilateral broncho-pneumonia of a rather hemorrhagic type, the organisms demonstrable in the lung sections were large numbers of streptococci, many colonies of staphylococci, and a moderate number of minute bacilli of about the size of *B. Influenzae*. The histological picture was, however, not that of the epidemic influenza type. There was also marked chronic alveolar emphysema. (2) Generalized arteriosclerosis, particularly of the coronary, mesenteric, pancreatic and tibial arteries. (3) Chronic interlobular and interacinar pancreatitis with small patches of fat necrosis in the capsule of the pancreas. (4) Subacute and chronic intrahepatic cholangitis with moderate periportal fibroplasia. (5) Healed cholecystitis with atrophy of the gall bladder. (6) Subacute adrenalitis. Other findings were gangrene of right big toe, acute splenitis, sacral decubitus, hypertrophy of the prostate, slight chronic aortic endocarditis, cystitis cystica.

The cause of death was plainly acute broncho-pneumonia. In view of the work of Evarts Graham* and others it is important to discuss further the gall bladder-liver-pancreas relationship. There had been an inflammatory condition in the gall bladder but this had apparently healed, with resulting atrophy of the organ. A subacute cholangitis in many lobules of the liver and chronic fibrosing periportal hepatitis were present. There

* Evarts A. Graham and M. G. Peterman, "Further Observations on the Lymphatic Origin of Cholecystitis and the Associated Pancreatitis," *Archives of Surgery*, 1922, IV, 1, 23.

was much chronic interlobular and interacinar pancreatitis with in places an almost adenomatous overgrowth of duct epithelium. The entire situation as regards these three organs speaks most strongly for an ascending infection from the duodenum along the common and pancreatic ducts, but a primary gall bladder lesion with infection of the liver and pancreas by way of the lymphatics cannot be ruled out.

The adrenals with their very marked lymphoid infiltration and low lipoid content suggests that the rather low blood pressure observed and the great weakness of the patient may have been expressions of adrenal insufficiency.

Dr. Elting mentioned the frequent association of diabetes and arteriosclerotic gangrene in elderly people. He doubted very much that the diabetes is the cause of the gangrene. A mild grade of diabetes is very frequently found in those past middle life, when the blood as well as the urine is examined for sugar, and is probably more often a coincidental rather than a causative finding in cases of gangrene.

CASE II

Male, white, adult. Age, 65 years. Janitor. Swede.

Chief Complaint. Dizziness since 1916 and shortness of breath since October 31, 1921.

Past History. For several years patient has had dizzy spells. At a hospital in New York City these spells were said to be due to "ear trouble." For fifteen years he has had a mild form of "rheumatism." He denies venereal infection. Alcohol, tobacco and coffee were used sparingly. His average weight is 228 pounds. He has lost some weight recently.

Present Illness. Patient says he caught cold September 24, 1921, and there developed pain in precordial region, and over the left rectus muscle, radiating to his left shoulder. There was no limitation of arm movements. His local doctor treated him for heart trouble and he felt better. He came to Albany and had a recurrence of the same symptoms on October 8. A few days before entering the hospital he developed shortness of breath and orthopnoea. He had to sleep in a chair for a few nights and at times the shortness of breath came on in spells, patient feeling choked. Dizziness has occurred in frequent spells for five years.

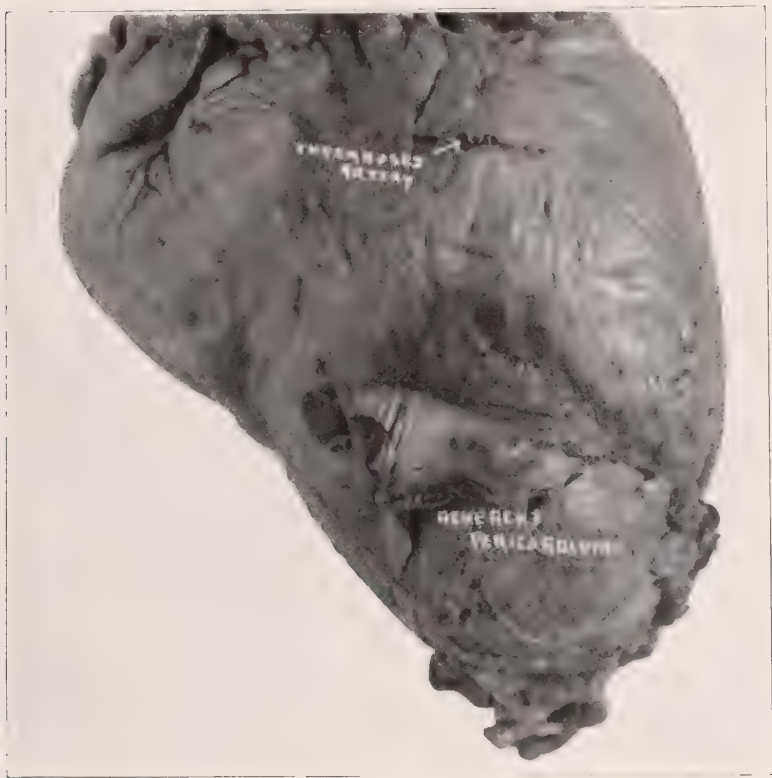
Physical Examination Summary.—His circulatory system showed cardiac gallop rhythm and "weak heart action." Pulses were equal, regular, rapid; rate, 110 per minute. His temperature was 98 degrees. Respirations, 32. His lungs were clear. Abdomen was distended and tympanitic. Blood pressure 140/100; Hb. 93 per cent; red blood count, 5,200,000; white blood count, 6,000. Urine, amber, cloudy, acid, s.g., 1.018, trace of albumen, no sugar, sediment contained an occasional hyalin and cellular cast, mucous shreds, cylindroids, and an occasional red blood cell. Wassermann on blood was negative.

Clinical Course.—Patient was put on digitalis medication. His temperature was irregular, 97 to 101 degrees; the last four days it was normal

to slightly subnormal. Pulse, 90 to 130 per minute. Respirations averaged 25 per minute. Blood pressure on November 9, 115 90; November 10, 110 80; November 11, 98 80. He was irrational at times and sleep was irregular. November 10 he coughed frequently, perspired much, and urine was scanty. November 14 at 10 a.m. he became very dyspnoëic and although given camphorated oil and glycerin hypodermically he expired at 10:15 a.m.

The same method of summarizing as that used in the first case was followed, the systems and their lesions being named in the order of their probable importance.

(1) Heart: Chronic myocarditis with hypertrophy. The symptoms suggest coronary endarteritis. Chronic endocarditis was considered a possibility, and also pericardial effusion.



CASE II, FIGURE I

Anterior view of heart showing infarcted apex with adherent pericardium, and thrombosed anterior descending branch of the left coronary artery

- (2) Generalized arteriosclerosis.
- (3) Lungs: Terminal broncho-pneumonia and edema. Pulmonary embolism was suggested.
- (4) Kidneys: Chronic nephritis.
- (5) Brain: (a) Arteriosclerosis; (b) cerebral anemia.
- (6) Chronic passive congestion of the splanchnic viscera.

The Postmortem Findings were:

- (1) Infarction of the left ventricle of the heart with mural thrombosis and adhesive pericarditis.
- (2) Occlusion of the anterior descending branch of the left coronary artery by atheroma and an organized thrombus.



CASE II, FIGURE II

Heart opened by sagittal section showing mural thrombus in left ventricle, great thinning of the ventricular wall of the apical region, and hypertrophy of the myocardium above the zone of infarction

- (3) Hypertrophy of the right ventricle and the uninvolved portion of the left ventricle.
- (4) Edema and congestion of the dependent portions of both lungs.
- (5) Anemic and hemorrhagic infarcts of the spleen.
- (6) Healed infarcts of both kidneys.
- (7) Fatty infiltration of the pancreas with fat necrosis, showing microscopically slight interacinar pancreatitis.
- (8) Healed pulmonary tuberculosis.
- (9) Blood formation in the liver sinuses.

The variability of the symptoms and physical findings in coronary artery disease was emphasized and it was pointed out that in all cases of unexplained dyspnoea and tachycardia, failure to respond to digitalis medication is strongly indicative of coronary artery disease.

Two surgical specimens were then shown, the first a leg amputated above the knee for an old ununited fracture of the femur in a young person who had had anterior poliomyelitis several years before. The muscles of the leg were in gross entirety replaced by fat tissue, the size and contour being, however, fairly well preserved. Microscopically a few atrophic muscle fibres were still present but these were being replaced by fat. The rest of the muscle was entirely replaced by fat. There was very little diminution in size from that of the sound leg and the anatomical changes were those considered more typical of muscular pseudohypertrophy than of anterior poliomyelitis.

The second specimen was a leg and a portion of the thigh from a negro. The subcutaneous tissues and deeper structures were streaked with widely disseminated coal black areas. At the base of the little toe there was a small ulcerated nodule. Microscopic examination showed the pigmentation to be due to a widespread invasion of the leg by melanotic sarcoma, evidently primary in the small nodule on the little toe. The tumor had invaded the lymphatics, walls of large arteries and even nerve trunks.

BOOK REVIEW

A Textbook of Bacteriology, Hiss-Zinsser-Russell; 1922, D. Appleton and Company, New York

The Great War added much to our knowledge in many fields of thought. It resulted in a more comprehensive study of epidemiology and sanitation, the recognition of certain new diseases dependent upon the peculiar life of the combatant soldier. Within the last eight years there have been opened new vistas in the study of human infections. These facts if sufficiently appreciated justify a new and much revised edition of most medical textbooks written before 1914, say. Treatises on pathology and bacteriology for students and for general reference have been making their appearance and one of the latest is the 5th edition of "A Textbook of

Bacteriology," by Hiss and Zinsser, in a new cover, and with a third collaborator, Col. Frederick F. Russell.

In placing new works before the buying public some publishers err greatly in neglecting to have the proofs read, or at any rate in regarding the proofreader's corrections as being "more honored in the breach than in the observance." For the most striking evidence of haste in the bringing out of this otherwise most excellent medical student's "bacteriology" is the large number of typographical errors. These vary from misspelling of words to faulty setting of whole lines of type, mistakes which are pardonable only in an "Extra" of a city daily. On page 403, Dr. Rosenau of Harvard is made to suffer the responsibility for certain of the ideas of Dr. Rosenow of Rochester, regarding streptococci and their relationship to poliomyelitis. On page 944, line 23, "mouse" is used where "louse" is undoubtedly intended.

But even such gross evidences of undue haste cannot cloud the fact that for the general student the text is very readable. The discussion of certain infectious diseases and new races of organisms is very fair and stimulating, particularly "epidemic" influenza, yellow fever, and Weil's (sic) disease. The chapters on Filtrable Viruses are excellent summaries of our knowledge up to a late hour. The Rickettsia are treated at length and Wolbach's studies of Rocky Mountain spotted fever and typhus fever are given deserved prominence. The work of E. C. Rosenow on poliomyelitis and transmutation of streptococci and pneumococci is subjected to much criticism. As to the latter the authors state that "It is our opinion at the present time that such fundamental mutations do not take place, and that it will take a great deal of very careful and accurate work before such claims can be seriously considered."

This textbook of bacteriology, after its many typographical errors which would be sure to confuse the average medical student, have been corrected, will be a valuable adjunct in the teaching of the subject.

V. C. J.

CURRENT EVENTS

Edited by WILLIAM P. HOWARD, M. D.

ALBANY DEPARTMENT OF HEALTH

STATISTICS, JANUARY, 1922

DEATHS FOR THE MONTH OF JANUARY, 1922

Cancer.....	13	Typhoid.....	0
Pneumonia ..	13	Whooping Cough.....	0
Broncho-pneumonia ..	11	Measles.....	0
Tuberculosis.....	11	Deaths under one year.....	17
Apoplexy.....	11	Deaths over 70.....	42
Accidents and Violence.....	10	Death rate (non-residents in-	
Bright's Disease.....	8	cluded)	15.4
Influenza.....	3	Death rate (non-residents ex-	
Diarrheal Diseases.....	2	cluded)	12.7
Scarlet Fever.....	1	Births.....	199
Diphtheria.....	1	Still Births.....	6

DIVISION OF COMMUNICABLE DISEASES

Chickenpox.....	72	Typhoid Fever.....	2
Pneumonia.....	64	Smallpox.....	0
Influenza.....	36	German Measles.....	0
Diphtheria and Croup.....	33	Mumps.....	0
Tuberculosis.....	19		—
Whooping Cough.....	19	Total.....	316
Scarlet Fever.....	9		

Number of days quarantine for scarlet fever:

Longest..... 34 Shortest..... 30

Number of days quarantine for diphtheria:

Longest..... 47 Shortest..... 11

Fumigations:

Rooms..... 141 Buildings..... 38

Milk bottles disinfected..... 845

MISCELLANEOUS

Tuberculosis

Living cases on record January 1, 1922..... 598

Cases reported:

By card..... 15

Dead cases by certificate..... 4

— 19

—
617

Dead cases previously reported....	7
Dead cases not previously reported.	4
Removed.....	12
Died out of town.....	2
Recovered.....	0
Unaccounted for.....	0
	25

Living cases on record February 1, 1922 ..	592
Total tuberculosis death certificates..	11
Non-resident deaths.....	2
Resident deaths.....	9

LABORATORY REPORT

Diphtheria

Initial positive.....	50
Initial negative.....	358
Release positive.....	122
Release negative.....	435
Unsatisfactory.....	10

Total.....975

Sputum for Tuberculosis

Positive.....	34
Negative.....	169
Unsatisfactory.....	0

Total.....203

Widals

Positive.....	2
Negative.....	13
Unsatisfactory.....	0

Total.....15

Meningococcus

Positive.....	0
Negative.....	0
Examination.....	1

Total.....1

Wassermann Tests

Positive.....	52
Negative.....	239
Unsatisfactory.....	11

Total.....302

Gonorrhea Examinations

Positive.....	39
Negative.....	64

Total.....103

Milk analyses.....	233
Water analyses.....	0
Pathological examinations...	0
Miscellaneous examinations.	4

Total examinations....1836

DIVISION OF MARKETS AND MILK

Public market inspections....	25
Market inspections.....	124
Fish market inspections.....	13
Slaughter house inspections..	1
Rendering establishment in- spections ..	1
Pork packing house inspections	7
Hide house inspections.....	0
Cows examined.....	104
Cows quarantined.....	0

Cows rejected.....	0
Milk depots inspected.....	40
Inspections of stores selling milk	34
Dairies inspected.....	12
Milk houses examined.....	12
Milk cans inspected.....	137
Milk cans condemned.....	0
Complaints investigated.....	2
Bob veal condemned.....	50 lbs.
Bacterial counts.....	97 Lab.

ACTIVITIES OF SOCIETIES

MEDICAL SOCIETY OF THE COUNTY OF ALBANY. -The regular monthly meeting was held in the Adelphi Club, 134 State street, Albany, Wednesday, February 15, 1922, at 8:30 p.m., with Thomas W. Jenkins, M. D., president, in the chair.

SCIENTIFIC PROGRAM. -"Fatal Hemorrhage from Gastric Polyp in Infants," Dr. Harry K. Tebbutt, Jr.; "Sour Milk, Infant Feeding," Dr. Cordelia B. Hathaway; "History and Value of Certified Milk Production" (lantern slides), Mr. Harry B. Winters, Secretary, National Certified Milk Commission (by invitation).

The following candidates for membership were elected: Dr. C. Floyd Haviland, Dr. William L. Gould and Dr. L. Prescott Brown.

A luncheon was served at the Adelphi Club after the meeting.

The following standing committees for 1922 have been announced: Legislative: Chairman, James F. Rooney, Erastus Corning and James N. Vander Veer; Economic: Chairman, John H. Gutmann, William Howard and C. F. Graham; Programme: Chairman, Arthur J. Bedell, L. B. Mount and Percival W. Harrig; Meeting Place: Chairman, Joseph O'Brien, Philip Hacker and Nelson K. Fromm; Milk: Chairman, Ellis Kellert, H. L. K. Shaw, Cordelia Hathaway, Joseph Bowers and John Miller, V. S.; Public Health: Chairman, James W. Wiltse, G. W. Papen, Jr., W. J. Wansboro, Joseph Cox, C. H. Moore and John J. A. Lyons; Luncheon: Chairman, Nelson K. Fromm, John E. Heslin and Harold A. Peck.

RUSSIA'S OWN APPEAL

FOR AMERICAN MEDICAL AID

People's Commissariat of Public Health
Foreign Information Division
Moscow, Petrovka 17

(Translated)

Dr. Michael Michailovsky, New York
Representative in America of the
Public Health Service of Russia

Allow me most deeply and warmly to thank you for the great help you have given us.

Russia is in deep trouble this year, as you know. Twenty-five million people will suffer hunger, millions will die of starvation. As is always the case in social catastrophies the first to suffer are the children. The cry of the little children carries far beyond the famine-stricken plains of the Volga. And disease follows famine. Fortunately we have mastered the cholera epidemic, but typhoid and typhus threaten us this winter.

Famine has brought disintegration to our medical work, even in Moscow. Our losses in the medical profession itself are heavy on the epidemic front.

We were strangled by the blockade, but we introduced sanitary standards unknown under Czarism. Since 1918 we have multiplied by ten the number of State supported hospital beds in Russia. We have created new machinery to combat tuberculosis and the venereal diseases and to safeguard mothers and babies. With tremendous labor we have laid the foundations for the enlightened care of our people, and it hurts to see that in this year of our bitter trial, the work of our hands must suffer collapse.

The American Relief Administration is feeding large numbers of our starving children. For this humanitarian aid we send our deepest gratitude to the American people. But I beg you to give us medical help. Send us drugs—malaria infests the Volga Valley, and aggravated by hunger, malaria has a terrible malignancy. Send us food for our hospitals. Send us surgical and medical instruments, laboratory equipment, ambulances.

I am convinced that your appeal for help will find a broad response among the American people. Sanitation in Russia is a human problem, not a political problem. We labor to raise Russia out of the darkness of the past, and this aim should be clear to the mind and close to the heart of all enlightened people.

In this assurance, I wish you success in your work.

(Signed) M. SEMASHKO, M. D.

Issued by the

AMERICAN MEDICAL AID FOR RUSSIA COMMITTEE

Room 901, 103 Park Ave., New York City

January 1, 1922.

FOR BOOKS AND PERIODICALS

Since 1914, Russia has been cut off from medical books and current medical literature and from professional contacts. Her medical men and women, and her scientific workers and laboratory experts ask for books, original studies and reprints concerning medicine and public health, and files or single issues of scientific medical journals issued since 1914. Gifts of these or money for their purchase will be gratefully received by the Representative in America of the Public Health Service in Russia, Michael Michailovsky, M. D., Room 901, 103 Park Ave., New York City.

RUSSIAN DOCTORS NEED FOOD

The starving condition of Russian doctors in the famine areas, where their help is badly needed, is seriously interfering with a vitally important medical program drawn up by the American Relief Administration officials for the benefit of the hunger-stricken population. Cholera, typhus, malaria, dysentery and other skin and stomach diseases consequent on malnutrition, are rampant all through the Volga river basin, where 30,000,000 people are in acute need, if not in danger, due to the failure of last summer's crop. An absolute dearth of medical supplies at

first hampered the work of the American Relief Administration, but a grant of \$3,000,000 in cash from the American Red Cross for the purchase of stocks as well as a further gift of \$700,000 worth of surplus material made, eliminated this difficulty. Now the call is for personnel which Russia herself can supply, if only food enough can be found to keep the workers themselves fit.

"We urge consideration of the possibility of securing general relief in the form of food remittances for doctors," the American Relief Administration cabled recently from Moscow. "This is one of the most urgent needs to assist the general Russian situation. We can only secure the best results for our large and vitally important medical program by using to the maximum extent the Russian doctors whose condition especially in the famine areas is desperate. Telegraphic advice of general relief donations for this purpose to make it as far-reachingly effective as soon as possible would have wonderful results. I don't know of any greater service that our contributors could do than come through right now with generous donations for this purpose."

These food remittances which can be bought at the American Relief Administration offices, 42 Broadway, New York, call for the delivery to designated individuals in Russia of packages, each costing \$10, containing 117 pounds of nourishing food. This includes flour, rice, cocoa, sugar, cooking fat, tea and condensed milk, sufficient in each package to keep an adult well fed for one month. Should the donor in America not know of any individual to whom he or she wishes to send such a gift, the remittance can be made payable to general relief, the beneficiary to be chosen by the A. R. A. after personal investigation of his needs.

Already the Jewish Joint Distribution Committee, in reply to the A. R. A., appeal on behalf of doctors, has appropriated \$25,000 to be spent on remittances for their relief.

ALUMNI NOTES

Edited by CHARLES C. DURYEE, M. D.

1868

DR. LEWIS H. VAN WAGNER of Sherbourne, N. Y., is superintendent of the Chenango County Tuberculosis Hospital. Dr. Van Wagner is also health officer of the consolidated health district of the village and town of Sherbourne.

1869

DR. A. W. VAN SLYKE is still in practice in Coxsackie, N. Y. Dr. Van Slyke has been interested in public health matters since the inception of the State Department of Health, and has served as health officer of the town of Coxsackie for many years.

1871

DR. G. L. ULLMAN, 92 Central avenue, Albany, N. Y., has retired from the position of physician to the Albany County Jail. Dr. Ullman served in this capacity for nearly twenty years.

1880

DR. JOHN A. MOORE of Westport, Fairfield county, Conn., is a member of the Dutchess County, N. Y., Medical Society.

1881

DR. RICHARD J. BROWN is in practice at Jamestown, N. Y. Dr. Brown's office address is 1112 North Main street.

1882

★ DR. WALTER B. MILLER, of Millerton, Dutchess county, N. Y., died at his home on January 14, 1922, after a sudden severe pain in the chest, which suggests angina pectoris. Dr. Miller was born at Bovina, Delaware county, 66 years ago last September. He spent his boyhood in Downsville, and after graduation in medicine practiced for about ten years at Dolgeville. He then removed to Millerton where he continued in active work until a few hours before his death, a period of thirty years. His special interest outside of his professional work lay in fraternal societies, and he was a charter member of the local lodge of Odd Fellows, which was organized in 1893. He also became a member of the Masonic fraternity in 1902, and was a past master. Dr. Miller married in 1881 Miss Clara F. Goodhue of Albany, who with two daughters survives. Two other daughters have died. Dr. John A. Miller of Roscoe, N. Y., is a brother, and Mrs. W. B. Warren of Cornwall-on-Hudson, a sister.

1883

DR. CHARLES F. WHARTON of Richmondville, N. Y., is health officer of the consolidated health district of the village and town of Richmondville, Schoharie county, N. Y.

DR. FRANK L. SMITH is practicing at 2180 Main street, Bridgeport, Conn.

1886

DR. JOHN A. ROBSON is in practice at Hall, Ontario county, N. Y. Dr. Robson is health officer of the town of Seneca.

1890

DR. I. T. SUTTON of Prattsville, Greene county, N. Y., is and has been for some time health officer of that town. Dr. Sutton's son was also recently graduated from the Albany Medical College and is now an interne in the Albany Hospital.

1893

DR. COLLIE J. ROBINSON is in practice at Northville, N. Y. Dr. Robinson is health officer of that village and also of the town of Northampton.

DR. GEORGE E. ROGAN is in practice at Medina, N. Y., where in addition to his professional duties he has been an efficient health officer for some years.

1894

DR. THOMAS C. SAWYER resides at 81 Genesee street, Auburn, N. Y., where he has been in practice for a number of years. Dr. Sawyer has served the city of Auburn as health officer for several terms and has given to the people of that city a modern and progressive administration of that office.

1895

DR. ARCHIBALD BUCHANAN, 128 Third street, Troy, N. Y., is retained by the Federal Relief Board to care for Troy's disabled veterans.

1896

DR. ERVING HOLLEY of New York City, served as Major in the Medical Corps of the United States Army from May 30, 1918, to June 30, 1919. Dr. Holley was with the A. E. F. in France in the neuro-psychiatric service.

1897

DR. R. H. IRISH of 507 Broadway, Troy, N. Y., is clinician for the Rensselaer County Tuberculosis Association.

DR. BUEL LATCHER, 138 Elliot avenue, Yonkers, N. Y., is one of the district physicians of the city of Yonkers.

DR. CHARLES H. BENNETT of Sodus, N. Y., is health officer of both the town and village of Sodus, Wayne county.

1898

DR. JAMES F. ROONEY, 355 Madison avenue, Albany, N. Y., is President of the Medical Society of the State of New York.

DR. R. LEIGHTON LEAK was, during the war, neuro-psychiatrist to the Medical Advisory Board, Second District, Columbia, S. C.

DR. JULIAN A. GAUL is practicing at Roxbury, Delaware county, N. Y., and is health officer of that town.

DR. MENAS S. GREGORY served as a member of The War Work Committee of New York City and as a member of the National Committee of Hygiene, New York City. Dr. Gregory also served in the Medical Corps, U. S. Army, from September 6, 1917, to October 20, 1919, and was discharged as Lt.-Col. He served in the neuro-psychiatric service at Plattsburg Barracks, Fort Niagara, Camp Dix and Camp Stewart, Virginia, and was chief of the Neuro-psychiatric Division, Office of the Surgeon, Port of Debarkation, Hoboken, N. J.

1899

DR. EDWARD L. HANES served as Captain in the Medical Corps, U. S. Army, from June 12, 1917, to March 4, 1919. Dr. Hanes was attached to the neuro-psychiatric service in both this country and France.

DR. THOMAS W. SALMON of New York City, served as Major and Colonel in the Medical Corps, U. S. Army, from October 1, 1917, to May 5, 1919. He was in France from December 6, 1919, to March 6, 1919, as senior consultant in neuro-psychiatry. Dr. Salmon was awarded the Distinguished Service Medal.

1902

DR. ELWIN CHAMPLIN, who is in practice at Fleischmanns, Delaware county, N. Y., is health officer of the following villages and towns: Village of Fleischmanns, town of Middletown, Delaware county; village of Pine Hill and town of Hardenburgh, Ulster county, N. Y.

DR. CHARLES P. WAGNER, St. Johnsville, N. Y., is health officer of the consolidated health district of the village and town of St. Johnsville, N. Y.

1903

DR. JAMES N. VANDER VEER of Albany, N. Y., is Chairman of the Committee on Legislation of the Medical Society of the State of New York.

1904

DR. WILLIAM G. KEENS, 206 State street, Albany, N. Y., was recently elected County Chairman of the Albany American Legion, at a meeting held at the City Hall.

DR. CHARLES W. CHAPIN, Green, N. Y., was appointed health officer of the village of Green, Chenango county. Dr. Chapin has been health officer of the town of Green for some time.

1905

DR. ARTHUR P. CLARK is in practice at New Hartford, Oneida county, N. Y. Dr. Clark is health officer of the consolidated district of New Hartford village and town.

DR. P. J. DONAHOE is practicing medicine in New Hartford, Oneida county, N. Y.

1906

DR. EDWARD A. DEAN is practicing his profession in the city of Lackawanna, Erie county, N. Y.

DR. FREDERICK C. CONWAY, 292 Madison avenue, Albany, N. Y., is Chairman of the Standing Committee of Arrangements of the Medical Society of the State of New York.

1907

DR. FREDERICK FRISCH is practicing in Atlantic City, N. J. His office address is 1500 Pacific street.

DR. CLARENCE R. KAY is in practice at Peapack, Somerset county, N. J.

1908

DR. GEORGE P. PITKIN is practicing in Bergenfield, N. J.

DR. JOHN A. BATTIN, 1007 State street, Schenectady, whose health was shattered by war service, has, through the efforts of the congressman from his district, received a new rating of compensation from the Government. Dr. Battin, after being graduated from the Albany Medical College, practiced at Westport, Essex county, from 1909 to 1917. On May 31, 1917, he volunteered his services to the Government and was commissioned a Captain in the U. S. Medical Corps. He was sent to England in advance of the A. E. F. and assigned to the Western Front which he reached on September 4, 1917. While on duty at Hangard Woods, April 27, 1918, he was severely wounded in the head, shoulder and right hand by German shrapnel, and was sent back to England a few days later and convalesced at the Queen Alexandra Hospital, London. During his convalescence, he did light hospital duty. In August, 1918, he was examined by the British Medical Board and given three months' convalescent leave and ordered back to America where he was when the Armistice was signed. He was treated at the hospital at East 210th street, New York City, when the wound of his head caused him much suffering. Dr. Battin was commissioned Major September 4, 1918, and on December 31 of that year, was discharged. He was unable to practice his profession until May, 1919, when he made the attempt at Elizabethtown, Essex county, N. Y. He afterwards left for Schenectady where he opened an office at 1007 State street. His failing health and frequent confinement to his bed prevented him attending to his practice and he was obliged to give it up. Dr. Battin's many friends in the profession and out are gratified that the Government has undertaken to provide more adequate compensation and care. He is now in a hospital at Utica, N. Y.

DR. STANTON P. HULL, Petersburg, Rensselaer County, N. Y., was appointed a member of the Public Health Council by Governor Miller on March 3, 1922.

Dr. Hull has been health officer of Petersburg for twelve years, health officer of Grafton for ten years, and health officer of Berlin for three years.

He is a member of the Rensselaer County Medical Society and the American Medical Association. Dr. Hull was a member of the class of 1919 in the Course of Infectious Diseases and Public Health, given under the auspices of the Albany Medical College and the New York State Department of Health. Dr. Hull is surgeon to the Rutland Railroad. He has been an efficient health officer and has shown great interest in public health and in preventive medicine, and will, unquestionably, be a distinct acquisition to the Council.

1909

DR. H. B. GILLEN entertained the Medical Society at his home in Vine street, Cohoes, N. Y., on February 9, 1922. Dr. J. Henry Mitchell, Jr., A. M. C., 1912, and Dr. Raoul A. Hebert (A. M. C., 1915) read papers.

DR. FREDERICK W. MCSORLEY is Director of the Division of Tuberculosis of the New York State Department of Health.

1911

DR. C. B. PACKARD of Berlin, N. Y., health officer of that town, was, January 18, 1922, also appointed health officer of the town of Petersburg, Rensselaer county.

1912

DR. ALION B. DALEY is in practice at Athens, N. Y., and is health officer of the town of Athens.

1913

DR. JOHN D. TIDABACK is practicing his profession at Summit, N. J.

DR. DAVID T. BREWSTER, JR., is also practicing at Summit, N. J.

DR. HUGH S. GREGORY was a member of the Medical Advisory Board No. 33, at Odgensburg, during the war. Dr. Gregory was engaged with the examination of registrants during the entire existence of the advisory board.

1914

DR. PARKER A. GROFF is practicing in Little Ferry, Bergen county, N. J.

DR. N. A. FALVELLO is at Summit, Union county, N. J.

1916

DR. RAY E. PERSONS of Cairo, N. Y., is physician to the Greene county almshouse.

1917

DR. JOHN J. RANDALL is practicing at Bangor, Franklin county, N. Y.

1919

DR. ALEXANDER MASON is practicing at South Butler, Wayne county, N. Y., and is health officer of the town of Butler.

1920

DR. WILLIAM L. GOULD, 839 Broadway, Albany, N. Y., has been appointed physician for the fourth city district.

ALBANY MEDICAL ANNALS

DISEASE OF THE HEART SIMULATING THE PICTURE OF AN ACUTE SURGICAL CONDITION OF THE ABDOMEN

*Read at the Meeting of the Interurban Surgical Society, held at the Albany
Hospital, November 25, 1921*

By L. W. GORHAM, M. D.

Clinical Professor of Medicine, Albany Medical College

I wish to invite your attention to the consideration of the fact that at times it may be difficult or even impossible to clearly distinguish a certain type of acute cardiac disturbance from an acute abdominal condition requiring immediate surgical intervention. I refer to coronary thrombosis with resulting cardiac infarction. We have come to a full realization of the importance of these cases in the differential diagnosis of acute surgical conditions of the abdomen, from the experience gained in this clinic and from the recorded observations of others.

Coronary thrombosis may present a very characteristic symptom-complex, so distinct in every detail that a diagnosis is comparatively simple. On the other hand, the symptoms and signs resulting from this pathological change may be so atypical and so similar to those caused by lesions in other organs, that a correct diagnosis is practically impossible.

A typical case of coronary thrombosis would have the following unmistakable features: a man of fifty years has a sudden attack of severe pain over the heart radiating to the arm, lasting for several hours, unrelieved by morphine and nitroglycerine, and succeeded by a feeling of soreness for

several days. Flatulence, slight nausea, restlessness, and some dyspnoea are present; fever 99 to 100; leucocytosis 18,000. Three days after the onset a localized to and fro pericardial friction rub is heard (perhaps for a few hours only) in the fourth left interspace near the sternum. Tachycardia, feeble heart sounds, falling blood pressure are accompanied by signs of edema of the lungs and chronic passive congestion of the liver, and twenty days after onset, the patient may suddenly fall back on his pillow dead, or make partial recovery, depending upon the amount of damage to the myocardium.

The type of pain, its radiation, the gastric symptoms, fever, leucocytosis, dyspnoea, restlessness, tachycardia, feeble heart sounds, falling blood pressure, etc., are all suggestive points when taken together, but I would like to emphasize the fact that there is only one physical sign which may be taken as almost absolutely diagnostic of coronary thrombosis, i.e., pericardial friction. As I will show you in some lantern slides, and in the specimens arranged on the table, this physical sign has a pathological basis. The plugged coronary vessel leads to necrosis of the heart muscle, and a fibrinous exudate upon the epicardium results. It is this exudate which produces the rub. When present this friction rub is conclusive proof of coronary thrombosis. One need only rule out other causes of pericarditis, which rarely occur with such a history. Unfortunately the friction rub is not always present. Its absence by no means excludes coronary thrombosis.

The atypical case of coronary thrombosis is the one especially interesting to the surgeon. Such a case may have an attack of sudden pain located entirely in the epigastrium or none at all. The general appearance is of a patient severely shocked, the skin moist, ashy gray in color, the pulse rapid, easily compressible. The heart sounds are somewhat muffled. The lungs are clear except for a few crackles at the bases. The temperature is 99 to 100 degrees F., and the leucocyte count 24,000. There is nausea, vomiting, tenderness and muscle spasm in the epigastric region and under the right costal margin. The patient has a

history of chronic indigestion with much gas, and several attacks of sharp pain in the epigastrium. Because of the history and physical findings the surgeon may rightly suspect that he is dealing with an acutely infected or perforated gall bladder, perforated gastric duodenal ulcer, or acute pancreatitis.

Two cases of coronary thrombosis in our series were admitted as surgical patients, under the diagnosis of gall stones. The first had definite edema at the bases of his lungs, an enlarged, tender liver, and developed a pericardial friction. The second patient was sent to the hospital for X-ray pictures of the gall bladder. He collapsed in the X-ray room and died suddenly twelve hours later. The diagnosis was made in the first case but was not in the second.

To emphasize the difficulty in differential diagnosis met with in other clinics as well as here and to show the practical bearing upon surgery, I shall quote from a recent article by Levine:*

"It has been my opportunity to see several patients in recent years whose clinical pictures pointed very definitely to an acute surgical abdomen. The history in these cases was sudden, severe pain in the upper abdomen associated with nausea, vomiting and collapse. When seen, patients had marked tenderness in the epigastrium between the navel and the right costal margin and also in the gall bladder region. There was spasm and rigidity of the abdominal muscles in this area, and it was suspected that a tumor mass of some kind could be felt under the right costal margin which might have been gall bladder or liver. There was a temperature of 102 degrees and leucocytosis of over 20,000. The rest of the examination in these patients was essentially negative, except that the heart sounds, though regular and only slightly rapid, were quite distant. This point was particularly striking because the intensity of the first sound at the apex was diminished more than that of the second sound. The systolic blood pressure was low, giving a small thready pulse. In two such patients it was thought

* New York State Journal of Medicine, 1921, xxi, 382.

that an acute fulminating surgical condition was present, such as a ruptured gall bladder, a perforated gastro-duodenal ulcer or an acute pancreatitis. One of these patients was operated on and died on the operating table. In the second, operation was postponed for twelve hours because of the presence of sugar in the urine and acidosis in the blood, and during that time certain events took place that made us focus our attention on the heart. This latter patient suddenly developed a very slow pulse of 28 and had some fainting attacks. The diagnosis of infarction of the heart, due to coronary thrombosis, was made, and this was subsequently confirmed at autopsy. The first patient also showed a similar picture in the heart pathologically, while both showed negative findings in the abdominal viscera."

From the foregoing we conclude that while some cases of coronary thrombosis present no difficulties in diagnosis, still others are masked or so unusual that they may be mistaken even by the ablest physicians and surgeons for acute surgical disease, and operated upon. The surgeon will find it helpful in studying these cases to realize that (1) coronary pain may be localized purely in the epigastrium, (2) fever and leucocytosis may be caused by infarction of the heart muscle, (3) râles at the bases of the lungs, with distant or enfeebled heart sounds, associated with tenderness in the upper abdomen, suggest a chronic passive congestion of the liver from a weakened heart muscle; (4) pericardial friction, if present, is the only sign which is practically infallible as a diagnostic aid. It should be sought for carefully and repeatedly in doubtful cases, because of its localized and transient nature. Other types of non-infectious pericarditis must of course be excluded. These are limited to the rare types occurring as syphilitic pericarditis or in connection with chronic nephritis.

THE PHYSICIAN AND WORKMEN'S COMPENSATION LAWS

*Read at the Meeting of the New York State Society of Industrial Physicians
and Surgeons held at Syracuse, December 7, 1921*

By GEORGE E. TUCKER, M.D.

Aetna Life Insurance Company

The increasing interest in the medical administration of Workmen's Compensation Laws is evidenced by so many different important objective signs that the subjective symptoms might properly be ignored if they were not so forcefully over-emphasized.

The objective signs most easily recognized are:

First. The large number of amendments to the medical provisions of Compensation Laws that have been adopted in the several states during the recent sessions of the legislatures.

Second. The complete change of attitude on the part of the public, employers and employees toward adequate and competent medical, surgical and hospital treatment of workers injured in industry.

Third. The efforts of Compensation Commissioners so to administer the laws as to encourage proper treatment of all injuries and to discourage payment of cash benefits in lieu of medical benefits.

Fourth. The emphasis that is now placed upon restoration of function and earning power, or rehabilitation.

The subjective signs of interest in the problem under discussion are the number of papers written, the opinions voiced by interested partisans as to details of proper administration, treatment, choice of physicians and other controversial features of medical administration.

Since physicians are trained to take histories, make examinations, weigh signs and symptoms, and make deductions in order to arrive at a diagnosis, prescribe treatment and go on record as to prognosis, it occurs to me that perhaps the same method may advantageously be employed to present the case of the physician and Workmen's Compensation Laws.

FAMILY HISTORY

The antecedents of our Compensation Laws in the United States were not unusually healthy. They suffered from numerous complaints that were readily transmissible, with the result that their progeny were not free from sundry and serious defects at birth.

The paternal ancestors migrated from Europe, being of mixed blood—largely German, English and French. The maternal line was, at least for several generations, of native birth but for many years not in good standing.

In other words, our early Compensation Laws were patterned after the German, English, French and other European laws, with a trace of our Employers' Liability, or master and servant theory written into them.

PERSONAL HISTORY

There is an almost uniform agreement by legislators and parties at interest as to the purpose of Workmen's Compensation, both in Europe and in the United States. One would therefore conclude, without investigation, that there must be a corresponding uniformity in legislative provisions. On the contrary, even at this time, there is a wide difference of compensation standards in adjoining states, where those differences of industrial conditions that might affect requirements do not obtain.

If any possibility of uniformity of legislation in this country existed early in the enactment of Compensation Laws, such a possibility seems to be becoming progressively more remote. In fact Federal legislation which would affect all States alike seems like a development which is entirely outside the realms of probability. The inability to arrive at a satisfactory standard is presumably explained by the erroneous belief, now generally held, that there are marked differences in industrial and other conditions across state boundary lines.

It would be interesting, at least, to observe the results of an experiment which would apply the same Compensation Law in Massachusetts and Connecticut, or in New York and New Jersey, or in Illinois and Indiana. If the reactions were

to prove essentially different and if society, including employer and employee, were, in consequence, to suffer or benefit differently across border lines, a wonderful field for social economic research would have been found—and the problem might properly be assigned to college professors for solution.

As physicians however—and particularly as industrial physicians our immediate interest is focused on those compensation provisions which relate to medical aid and it is to this phase of legislation and administration that we must give our attention in this discussion today.

As late a study of this subject as is represented by the most recent publication of the United States Bureau of Labor Statistics shows that of twenty European Acts reviewed (excluding the fifteen British Acts) eight have provided for limited medical aid or for none, eleven for unlimited and one for unlimited aid after four weeks. Of the fifteen British Acts, thirteen make no provision for medical benefits.

If the fundamental premise actuating the passage of Compensation Laws and the discarding of right of action in accordance with Employers' Liability is sound, and if the burden of the employed who sustain accidental injuries (or as provided in some States, any injuries) arising out of and in the course of their employment is to be distributed to the consumer through the employer as an added cost of production, then it would seem to follow that there would be uniform agreement that injured workers should be relieved of the cost incident to furnishing adequate first aid, intermediate and rehabilitating medical, surgical and hospital treatment.

Workers in industry exchange physical and mental effort for wages. In the case of workers who sustain injuries of some seriousness during employment there enters into production a temporary sacrifice of time, income, comfort and physical efficiency. The public or beneficiaries of those efforts and sacrifices may, therefore, properly be called upon to meet the pro rata and fair cost necessary to reimburse those benefactors for their loss of time and income, for their

suffering and for the expense of such treatment as is needed to restore them, if possible, to their previous condition of mental and physical efficiency and earning power.

In spite of the apparent justice of this claim for equity and fairness as it affects both the injured and the consumer in the United States, of the forty-two states having Compensation Laws, but two have fully recognized it. Two others recognize it in part, and the others provide for limited medical aid or none, the limitations affecting time or money cost, or both.

The frequency of injuries resulting in dismemberment and the easy visualization of the immediate handicap that such injured workers suffer should provoke sufficient public sympathy to bring about the incorporation, in every law, of a provision that will supply artificial members for such cases. But five States have such a provision and I will not undertake to offer an explanation for the legislative apathy, indifference or poor conception of the real purpose of medical aid that has deterred such action.

Among legislators—and more to our shame, even among physicians—when medical aid provisions have been considered, palliation instead of restoration has been allowed to become the object of their efforts. The result has been that families are too frequently deprived of the support of their wage earners, an actual asset to society is permitted to become a liability and an otherwise profitable producer deteriorates into a helpless, consuming parasite.

Physicians and other parties interested in the compensation form of social relief in this country have made careful observations of the operation of Compensation Laws over a period of ten years. Their observations should have provided such incontrovertible evidence of the need for the continued broadening of the scope of medical treatment of injured workers, that the examples of unlimited medical aid, including artificial members, set by California in the West and Connecticut in the East should have been followed by the other forty so-called compensation states in order that such states might conform to their standards of social justice and good business economy.

Legislators, however, must give consideration to the

problem of acquiring votes and of retaining voting support with the result that their measure of legislative success is in part measured by a vote-getting standard. Physicians on the other hand, if they would be successful, must attend to the problem of establishing and maintaining a professional reputation and to the equally important problem of obtaining a profitable financial return for their services. If the rewards necessary to bring the observations and information from the one group to the other were offered in their customary medium of exchange, the lure would have brought early response and more uniform legislation would have followed.

If you as a physician were delegated to provide that treatment to an injured worker suffering from a simple fracture of the neck of the femur that would insure his recovery in a minimum of time with a maximum of functional restoration, would not a time limit of seven to thirty days, or a cost limit of \$25 to \$100 operate to discourage both you and your patient? And would not the problem of meeting necessary economies and of providing adequate and proper treatment within those limits, take precedence over the question of how to restore that worker to full earning capacity?

The limitation of weekly cash benefits has not, as a matter of fact, generally been so restricted. The measure of ultimate costs, therefore, resolves itself into a consideration of unlimited restoration expense as against prolonged payment of cash benefits, and no difficulty need be encountered in successfully defending the proper medical attitude.

Hundred per cent earning power constitutes a much greater stimulus to good citizenship than does a time limited two-thirds of wage pension, and we won't believe that many American workers are ready to exchange their ability to work for any cash benefits that may accompany semi-invalidism and dependency under a Compensation Law.

A program that would deserve the endorsement and most enthusiastic support of medical men is one that would furnish the following: immediate and intelligent first aid treat-

ment for all cases of minor injuries; proper treatment of minor and major injuries of moderate severity; the services of skilled specialists as a preventive as well as a curative measure; and the employment of modern diagnostic, therapeutic and educational agencies for the rehabilitation of workers suffering from dismemberment or functional handicaps.

Many definite and practical benefits would follow the fulfillment of this program. The wastage of absenteeism and labor turnover would be reduced. Production would be increased and production costs would be lessened. Otherwise discarded human units would be salvaged. Mendicancy would be discouraged and the potential productivity of the injured American workmen would be afforded another opportunity to express itself in increased effort and added accomplishments.

And, if this reward were not sufficient, in many instances there are the added benefits which would come unquestionably through the continued maintenance of the homes of those restored workers, through the education of their children and by reason of their contribution to the welfare, prosperity and happiness of their fellowmen, their community, their state and their country.

The anti-climax to the pronouncement of this ideal we might classify as constituting the subjective symptoms of interest in our subject. They arise out of the discussions of medical fees, the relative merits of different therapeutic procedures, the right of choice of physicians' the field of the general surgeon and the orthopedist, the ophthalmologist and the optician, the neurologist and the psychiatrist, the general practitioner and the specialist. The operating theory that has established physicians' fees for the care of compensation cases has been predicated upon the assumption that the law was enacted for the benefit of those workers who come within its scope and for the benefit of society as a whole.

No emphasis, however, has been placed upon the need either for enacting or for administering the law so as to reflect a substantial financial benefit to the medical pro-

fession. On the other hand, no one knows of an instance where either compensation legislation or its administration has been designed to deprive physicians of any part of the income they previously enjoyed from the care of the same class of cases from among workers of the same relative income and similar financial responsibilities. Let it be shown that a greater benefit can be derived from more liberal allowances for medical fees, that insurance premium rates can be loaded to meet the necessary additional expenditures which would ensue and proper legislation will follow.

If you, or any one of you, were privileged to review large numbers of compensation claims and were charged with the responsibility of selecting men and institutions to treat claimants, you would, I believe, make your choice primarily from among qualified ethical practitioners who obtain fairly uniform and satisfactory results. You would seldom question the methods or agencies utilized to obtain such results. You would feel that it is not a question of *how* but *who* in a community can promptly restore flat feet, remove embedded foreign bodies from the cornea leaving a minimum of after scar, interference with vision or other complications.

Industrial medicine and industrial surgery are as distinctly specialties within a group of specialties, as are brain surgery, gynecology and orthopedics specialties within the field of general surgery.

The average layman, especially a sick layman, generally selects his physician for purely irrelevant reasons, but quite the contrary is the case when a physician selects a medical or surgical attendant, or more often a group of medical or surgical attendants, to treat a member of his family or himself. Education, previous training, and experience are most carefully weighed and a group of consultants is not infrequently asked to make the selection of a specialist when highly skilled services are required.

DIFFERENTIAL DIAGNOSIS

The objective signs revealed by our examination show conditions so much more serious than those apparent from the subjective symptoms that we may safely eliminate

certain possibilities from consideration. Since there is no uniformity in methods of administering Compensation Laws by Industrial Accident Commissioners, it follows that of the several plans, some must be better than others. Ultimately, too, those having the responsibility will adopt methods which will improve their general results. The limitations of those improvements will be influenced by the provisions of the Act under which they operate, which leads us back to the original fault in the compensation plan for social relief, that is, the imperfect understanding of its purpose by legislators and the faulty provisions that have been allowed to creep in.

The proper rating of permanent disabilities seem to be the most difficult problem falling to Industrial Commissioners for solution, and although one state has a fairly satisfactory plan, infinitely better than that of any other at present in operation, there seems to be some unexplainable hesitancy on the part of other States to adopt it.

DIAGNOSIS

If both the writer's attitude and the previous statements and findings in this paper are sound, whatever shortcomings there are in the results obtained from the application of the compensation principle in this country and the part taken by physicians in connection with its operation may be attributed to faulty legislation and misunderstandings and the cure will follow further study, investigation, education and legislative amendments.

PROGNOSIS

As physicians, we know that it is unsafe to prognosticate, but we may predict that if members of the medical profession will wisely interest themselves in the worker, the employer and the body politics (being careful always jealously to guard the reputation which the profession has uniformly had—namely that its members will not under any circumstances prostitute their opportunities for service to the community to the furtherance of their own advantages), if they will intelligently gather information and place it before

the proper parties at interest, if they will assist instead of resist, if they will criticize constructively instead of destructively and make their voices heard at the proper time and in the proper place, we may confidently look forward to the adoption of those changes in legislative provisions, particularly medical provisions, necessary to bring the greatest good to the greatest number.

TREATMENT

Palliative measures administered at regular intervals and directed toward relieving the symptomatology will, like a narcotic, obscure the real pathology and mislead the anxious bedside watchers. Genuine and permanent relief, however, will come from the employment of radical surgery and its application to Compensation Laws, from cutting out dead tissues wherever found, performing a debridement, so to speak, and from transplantation of live parts from healthy subjects.

Payment of cash benefits in amounts sufficient to reward idleness and penalize effort contributes to the moral delinquency of susceptibles and creates an immoral hazard against which neither State nor private interests can successfully insure. Then the difference between full wage combined with a reasonable day's work, and two-thirds of wages combined with no work, amounts to so small a sum that the principal incentive to produce is removed, then we may expect the predominant human weakness, that is, the irresistible impulse or temptation to get something for nothing, to assert itself. On the other hand, if cash benefits are so niggardly that they fail to accomplish the primary object for which they are intended, if they need to be supplemented from savings which do not—and in too many instances could not—exist, or if the benefits must be supplemented by charity, then their very purpose is defeated and no permanent good will result.

To reflect real benefits to industry, society and workers, cash payments must be sufficient to insure a reasonable amount of food, clothing and a comfortable shelter for those injured and for their dependents. The necessity of suddenly

precipitating wives and immature children into industry should be avoided, in order that society and the family unit may derive those benefits that come from the activities of woman in the home and from the educational advantages that come to children in school.

If it can be shown that business interests of an essentially industrial state with large manufacturing payrolls have not, by reason of the enactment of legislation that provides unlimited medical aid for injured workers, suffered any handicap in competition with similar interests in an adjoining state, where the medical provisions of the Compensation Law are less liberal in scope, the weakness of one of the most useful and most freely used arguments against unlimited medical benefits will have been demonstrated.

If those cases of injury requiring special care and treatment are permitted to receive such attention in amounts no less adequate and in kind no less skillful than they enjoyed in free public hospitals at the hands of clinical staffs before Compensation Laws were passed, and if the same care and judgment will be exercised in the assignment of cases that was evidenced by the receiving staff of these same institutions, then and then only may we feel that they will receive the same or a greater measure of scientific assistance than obtained during the presumably barbarous days of public disinterest and apathy.

Industrial physicians will protect their group of workers and ultimately other similarly interested parties will just as zealously and certainly afford the same protection to their own groups, so that finally the spirit that medical men, as well as employers and employees, can most profitably demonstrate toward social relief and social betterment, will place interest above indifference, industry above idleness, fairness above injustice, intelligence above intolerance, and service above self.

A CHAPTER ON SANITARY DUTIES, AS OBSERVED IN THE HISTORY OF ALBANY, FROM 1859 TO DECEMBER 31, 1921

By ALBERT VANDER VEER, M. D.

Albany, New York

(Continued from March ANNALS, p. 108)

1887. City organization remained the same, with the addition to the Board of Mr. John V. L. Pruyn, Jr. No contract had been made by the Common Council for removal of night soil and dead animals. One of the inspectors was empowered to remove, or cause to be removed, these conditions, until further notice was adopted. Serious complaints were made regarding the basin at the foot of Maiden Lane. It was believed that some of the employees of the D. & H. were made ill, owing to the offensiveness of conditions there, with the inhalation of noxious sewer gases.

December 3. The Board of Health ordered culture tubes to be distributed to the hospitals and dispensaries for the investigation of diphtheria, these to be collected for examination and report.

December 6. An interesting report was made regarding the death of six cows that had died from anthrax. Six cases of smallpox developed, the first case being brought from Brooklyn. There were 550 vaccine points distributed to the penitentiary. The Common Council, by advice of the Board of Health and Police Department, advised that an increased appropriation be made for removal of night soil and better service - that the work could not be done properly for the present appropriation.

1888. Edward A. Mahar was elected Mayor. The health department remained the same, with the addition of Dr. F. C. Curtis, Dr. E. F. Larkin and Thomas F. Corcoran, and to the Board of Inspectors, John Hannigan and George Bachman. Examination by the Board of Health revealed many vaults where the sewer gas was most offensive, and pollution from imperfect disposal of outhouse and house

drainage. Investigation showed that garbage was being dumped into Island Creek, making that outflow dangerous. Thirty-nine cases of typhoid fever reported in the last three months, where well water was suspected of becoming a more serious menace, and, especially, Tivoli Lake. Rules were adopted to relieve this condition as much as the authority of the Board would permit. A long report on plumbing, drainage and ventilation was presented, accepted, and printed in full.

Dr. Vander Veer and the Health Officer, Dr. Balch, were appointed a committee to visit Montreal, to obtain information in regard to garbage disposal in that city, and presented their report October 22. No positive action was taken, the expense being deemed too great.

December 4. One case of smallpox reported, and a thorough re-vaccination recommended.

1889. The city government remained the same, there being added to the Board of Health P. E. McCabe and Horace Andrews, and to the Board of Inspectors Richard T. Gorman. There was a long controversy between D. Cady Herrick and Dr. Curtis and Dr. Larkin regarding the drainage of Green and Westerlo streets.

Request was made for a horse and wagon for plumbing inspectors, and that more vigorous action be taken regarding privy vaults. As an example of the indifference of the public, notice was served on James W. Eaton, 17 LaFayette Street, regarding the insanitary condition of privy vaults on property owned by him. No attention paid to this notice and it was resolved later, by the Board of Health, to correct this condition and the owner to pay the costs. This action in other similar cases brought better results. Dr. Ullman called the attention of the board to the seeming epidemic of typhoid fever at West Albany, following Labor Day. These cases could apparently be traced to a well that had formerly been used as a spring. There were two hundred and fifty cases reported in the railroad shops, out of two thousand employees. There was also an epidemic of scarlet fever and diphtheria in the southern part of the city. Many vaults and privies reported in an insanitary condition, and the

most earnest appeal was made that there be introduced into the budget for the following year not less than \$10,200 for the Board of Health to continue investigating and remedying the nuisances that could be reached in no other way. Much discussion presented regarding the necessity of a hospital for the care of smallpox and other contagious diseases, and October 29, Mayor Mahar made a report calling the attention of the Common Council to the possibility of obtaining the Congdon property for such purpose. There was some unpleasant discussion as to price and transfer, and the report did not bring the desired result. Dr. Vander Veer, to whom the subject was referred, reported the charges not true or sustained by the facts in the case.

December 10. The Board of Health recommended that a fireman be stationed at Proctor's Theater to prevent panic in case of fire.

1890. James H. Manning elected Mayor. Organization of the City Board of Health continued. General work of inspection, and abandoning of vaults in yards and outbuildings, and introduction of house toilets, with or without baths, insisted upon.

1891. Mayor Manning made no changes in the organization of the Board of Health, except the addition of Dr. L. C. B. Graveline. A resolution was passed by the board appropriating \$500 for careful bacteriological examination of the city water supply. The Health Officer, joining in some general discussion, said he believed the most probable cause of diphtheria the past winter was from contaminated, poisoned air.

In June an ordinance was passed requiring a half-S-trap on house drains, at accessible points, if possible, at or near front of the house. Water supply and drainage continued to claim much of the discussion occurring at the different meetings of the Board.

1892. James H. Manning re-elected Mayor, and members constituting Board of Health also re-appointed. At its first meeting a long report was presented on the removal of night soil not being satisfactory, and various changes suggested. City free from smallpox for over two years. Record

of deaths reported, under five years of age, 632. Many complaints of infectious and insanitary vaults received.

October 13. Report presented on garbage disposal, and December 2 a petition was presented by the Committee on Sanitary Improvement of much importance. Annual report presented for collection of garbage, November 28, and placed on file. Board of Health had ample funds at their disposal. Mrs. Melvil Dewey, on the part of the Woman's Association, was made chairman of Committee on Garbage Disposal.

1893. Mayor Manning continued health organization without change. Garbage question was up for discussion, as it was collected by private individuals, but no regular system adopted.

It is officially reported from New York City that cholera has made its appearance there, and it is very essential that the Board of Health in Albany take every precaution, making all preparations if it should present its appearance here. This measure was decided upon and a letter addressed to Mayor Manning. Much work was necessary and imperative to begin preparations immediately. Amount of money to the credit of the Board of Health, from last budget, \$8,000, of which \$4,408.22 had been expended, leaving a balance of \$3,591.78 for salaries and current expenses for remainder of year. Request was made to the Common Council that there be placed at the disposal of the Board of Health \$10,000, to be drawn on if the necessity arises. The epidemic of 1832 and sporadic cases since were not to be forgotten. This request was signed by the Health Officer, Dr. Lewis Balch. This sum was placed at the disposal of the Board, and Chief of Police detailed ten policemen for house to house inspections. Four extra inspectors were employed to serve notices, and make inspection of complaints from police officers. A large amount of work was done in the direction of cleaning stagnant pools, filling in city dumps and surface drains carefully examined. Martinville much improved, but city far from safety for a cholera invasion. A disinfecting plant was recommended. Isolation, disinfection and cleanliness considered the best methods of procedure. Need was

expressed for better means of transportation for officers of health department. No method could be determined upon regarding garbage disposal.

March 14. Dr. Vander Veer reported on removal of garbage, in connection with Chapter 35, Laws and Ordinance of City, Amended. This report was long and quite complete.

June 2. Garbage collection yet very imperfect. Many more complaints of unwholesome vaults.

Examination for master plumber's license recommended.

November 10. Inspection for cholera, under appropriation, and while disease had not appeared in Albany, the city was in very much better sanitary condition. Much good accomplished in this direction. Smallpox hospital in need of repairs. Resolution made that \$12,000 be appropriated for 1894, in budget, for removal of garbage, under direction of the Board of Health, and in keeping with the city laws. This resolution was not approved by the Common Council. There had always been a reluctance on the part of the committee on appropriation to set aside any great sum for treating the subject of garbage disposal. There seemed to be a great hesitancy to adopt any suggested plans or to enter into any one special method of disposal.

General vaccination, by the district physicians, was earnestly insisted upon, and from November 22 to December 1, 585 school children were vaccinated.

1894. Oren E. Wilson elected Mayor, with Dr. Lewis Balch as Health Officer. Dr. A. Vander Veer declined re-appointment on the Board of Health, feeling that his private practice demanded all of his time, and he could not give the necessary attention to the duties exacted or required. The Board was now made up of Drs. F. C. Curtis, Charles H. Smith, G. B. Schill, Daniel H. Cook, Messrs. P. E. McCabe and William S. Dyer; Clerk, Edward H. Long; Sanitary Inspectors, William J. McCormack, Charles Delaney, John Hannigan; Inspector of Plumbing, Drainage and Ventilation, George F. Bachman, Assistant, Edward T. Doyle. A communication to the Board of Health, in the early spring, stated indications pointed to cholera, which had assumed increased proportions in Western Europe. Of the \$10,200

appropriated in 1892, there was still available sufficient to complete inspection of complaints presented by the police, who had made a house to house inspection the previous year, and the subject was taken up for action. Two extra inspectors were employed for that purpose. More work done on public dump at Elberon Place, ponds filled, stagnant water drained, decayed animal and vegetable matter collected, and an earnest effort made to abate all of these nuisances. Great advance was made in hygienic conditions over that of the previous year. Decrease in death rate 424, against that of 1892. An appropriation was made for repair of the smallpox hospital. A more earnest effort also made to see that all school children were vaccinated. School Board had no funds for this purpose; however, through the efforts of Drs. F. C. Curtis and Edward G. Cox, 1473 vaccinations were made, and a careful record of inspections for 1893 reported:

Contagious diseases.....	3618
Markets.....	1764
Plumbing, drainage and ventilation.....	2849

Total.....	8231

A very good exhibit of earnest work as compared with the health supervision of the city from 1860 to 1874! Many other inspections became necessary because of the public interest in the belief that cleanliness would help to stamp out cholera, if it should make its appearance. The old discussion was repeated regarding garbage collection, and recommendations made to the Common Council, also a very earnest discussion was entered into, and hope emphasized for the construction of intercepting sewers, with better ventilation of the construction that was going on in many of the new streets, of larger conduits. Old privy vaults, it mattered not where they were located, it was insisted upon should be removed. The deaths of Mr. Brennan and Mr. Gorman were reported, and their official performance of duties referred to in a most appreciative manner.

January 30. Bids for repairs to the smallpox hospital were presented, and March 2 the work was carefully in-

spected and approved. An inspection was ordered regarding the cutting of ice from the canal.

April 21. Dr. T. J. Carroll, health physician in charge of the penitentiary, reported six cases of smallpox at that institution, also one case at the Albany Hospital, and patients were removed to the smallpox hospital. The health officer suggested that the district physicians, with six other physicians, make a thorough vaccination of children. Sensational reports regarding an epidemic of smallpox were so exaggerated a recommendation was made by the health department that they be left out of the papers, which was done.

April 23. Fresh bovine vaccine was procured and furnished to physicians, and they were to report every case vaccinated, also the hospital boards and dispensaries were supplied with it. Thanks were extended to the Department of Public Instruction for enforcing vaccination. This report was signed by Drs. A. Vander Veer, F. C. Curtis, G. B. Schill, and on motion of Dr. Vander Veer was adopted.

June 4. Four cases of smallpox removed to the hospital. Dr. John Thompson, who was physician in charge, reported the patients doing well.

July 2. The outbreak of smallpox, which began the latter part of May, now over. There were twenty-four cases in the penitentiary, with eight deaths. The inspectors connected with the Board of Health were placed under Civil Service rules. Examination was necessary and must be taken by all applicants.

December 7. Bishop Burke stated he had no objections to his clergymen reporting marriages.

1895. Mayor Wilson re-appointed the previous health officer and members of the board. A more complete report for 1894 was presented:

Diphtheria cases.....	122
Scarlet fever.....	801

In keeping with previous discussions that had taken place in an unofficial manner, a bacteriological laboratory was established by the board, in 1894, and was making progress, especially in reference to the report on cases of diphtheria.

Dr. A. MacFarlane, in a very generous, patriotic manner, had given his time, at the Albany Medical College, whose faculty and trustees had set aside a room for the use of the Board of Health, where collected specimens and proper materials were used for examination.

The death rate for 1894 was lower than for ten years previously. Again a plea was made for intercepting sewers. Tests showed the greatest pollution of water supply came from the city sewers, which, when the river was at full tide, carried the sewage up to the receiving pipes for the water supply.

And now I would emphasize your attention being called to the following report: April 5 a bill for work at the bacteriological laboratory was \$10.75.

The newspapers stated an outbreak of typhoid fever in the city, with the death rate during February higher than any other state. This report was proven erroneous, the death rate being twenty-eight, not thirty-eight, as reported. One-third more cases of typhoid than in 1891. From December, 1894, to April, 1895, 398 cases were reported, with sixty-five deaths. The water supply was supposed to be the cause. Outbreak was general. There was an exhaustive bacteriological examination made of the water supply, and an interesting report is made on page 564 of the Annual Report of the Common Council.

June 14. An Act of Legislature to enforce collection and disposal of garbage. Albany was to borrow money and issue bonds, the object being to establish some form of complete disposal. Further investigation, however, was carried on in visiting other cities regarding methods of disposal, etc. (see page 590 Minutes of Board). No city in the country the size of Albany without garbage collection. Worcester, Mass., uses garbage for municipal pig farm; Boston, Mass., sells garbage for pigs; Chicago has Engel Crematory, which some of the members of the Board of Health saw in operation during the World's Fair. Thackery Destructor, Montreal, with a capacity of fifty tons daily, cost from \$10,000 to \$15,000 to install. The expense of construction and maintenance seemed quite disturbing to the Common Council committee on appropriations. Report on the dis-

posal of garbage, presented by Dr. Curtis, quite exhaustive. Many complaints yet presented regarding privy vaults.

July 15. The establishment of public baths suggested and a motion was made that action be taken to introduce one to be tried out.

September 21. Previous history of diphtheria indicated it became more prevalent during the autumn months. The number of examinations had increased to that extent Dr. MacFarlane did not feel he could continue his services further gratuitously, as his increased practice demanded his time.

October 18. A special meeting was called to hear the report from the Sanitary Committee on the bacteriological laboratory, and it was recommended, accepted and adopted that Dr. MacFarlane be paid \$250 yearly for his services.

November 1. Measles prevalent, but other contagious diseases less than usual. Some typhoid. A new method of preparing vaccine virus, from Messrs. Truax, Green & Co., of Chicago, was discussed, and efforts were made to introduce cookery in the public schools. Boston has such instruction in every school district. The Board was of the impression this subject pertained more particularly to public health than to education.

A Committee on Disposal of Garbage, from the women's organization, consisting of Mrs. Melvil Dewey, Mrs. W. O. Stillman and Mrs. Frederick Townsend, was appointed.

The Albany Reduction Company was organized November 1, for treating disposal of garbage and other refuse. Mr. Jonas H. Brooks was president of the company. Salary of health officer now \$1,800, secretary, \$1,200; estimated budget for 1896, \$10,250.

November 20. Special meeting to discuss the \$15,000 loan for garbage collection. Previous motion withdrawn. Board of Health never able to formulate complete plans that received the endorsement of the Common Council. Unanimous request from school principals to plan for administering regulations of Board of Health in registering contagious diseases. Commissioner McCabe reported to Sanitary Committee on latter.

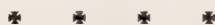
(To be continued)

EDITORIAL

There is, however, one class of testimony in this trial, as in the trial of the Devonshire witches a few years later, which enables us to understand how scientific education may in the end affect persons who have not themselves participated in it, and may assist in eradicating superstition and cruelty. The evidence of experts is, in our own time, very often open to grave animadversion; but it is as Hyperion to a Satyr when compared with the medical evidence given in 1665 and 1682. The physicians had been unable to heal the persons who, as alleged, had been bewitched; and they deliberately came forward to swear that there could be no cause for their failure except the employment of witchcraft against them. Dr. Brown of Norwich, gave a most elaborate disquisition on the subject. He communicated to the courts the latest opinions of science respecting the humours of the body; he illustrated in the witness-box the "subtlety of the Devil." He then explained how the working of those humours in certain relations with that subtlety was effected by witchcraft, and how it brought about, as its physiological result, a flux of pins.

LUKE OWEN PIKE.

*A History of
Crime in England*



The Physiology of Mind Dr. Francis X. Dercum has recently published a thesis upon the physical basis of so-called mental activities, which is to be commended for brevity and conciseness.* He has summarized the latest investigations into the structure, relations and functions of the nervous system in illustration of the modern conception of mind as purely and simply a manifestation of vital force. Such work may be regarded as the expression of science which accepts as facts only those phenomena which are susceptible to discovery and elucidation by the special senses of man aided by such instruments of precision as he may possess. The first

* *An Essay on the Physiology of Mind: An Interpretation Based on Biological, Morphological, Physical and Chemical Consideration*, by FRANCIS X. DERCUM, A. M., M.D., Ph. D. Philadelphia and London: W. B. Saunders Company, 1922.

pretentious publication in question of the older metaphysicians was the "Physiological Psychology" of Ladd, followed shortly afterwards by the epochal studies of Stanley Hall on "Adolescence." Some ten years ago Sherrington delivered his lectures upon the "Integration of the Reflexes" in which doctrines of volition and personal responsibility were sadly shattered, and the responses of the individual to the environment were shown to be largely automatic and inevitable. Sherrington's conclusions have been slowly gaining the attention they deserve, and are now the source from which all scientific inspiration is derived. The explanation of the delay is not far to seek: it is difficult, even for the unbiased observer, to divest himself of the inherited beliefs of ages, and to exclude from thought and from argument two such incompatible manifestations as a fixed determinate energy and an undiscoverable, supposititious, mysterious power. Conclusions and inferences are only to be drawn when reason itself is accepted as a demonstration of combination of nerve units. Going back a little, and with an eye upon these later studies, the neurologist may trace their beginnings in the superb clinical reports of Hughlings Jackson. It is true that Dr. Jackson differentiated volitional and automatic acts, but he permitted the automatic to encroach upon the volitional until the latter were practically annihilated. It is conceivable now that his conception of the highest cerebral inhibitory level might have been accepted as an intercalary neurone subject to the same laws of reception, transmission and effectiveness as apply to lower and simpler reflexes.

It is the merit of Dr. Dercum that he does not wreck upon this disintegrating rock of volition. In the higher regions he theorizes upon the peregrinations of the nerve cell and the retraction of the dendrites, an assumption which is not universally accepted. But there are practical difficulties in cerebral physiology which will leave these chemical and physical changes in the realm of the unknown for many years to come. For the present it is enough that under the influence of a stimulus the functions of the neurone are performed, and further, that the neurone, taking a lesson

from its congener, the amoeba, differentiates between what is good and what is harmful, and with the wisdom of the amoeba, shuns the latter.

A hint as to the direction which future investigation may take is conveyed in Dercum's recognition of the "passage of the ions." We are not sure whether the positive ion or the negative electron is the unit involved, but there is reason to hope that such discoveries as are reported from the laboratories of the General Electric Company, some of which are outlined in this issue of the *ANNALS*, may explain many problems now obscure, and that some light may be thrown, even if only by analogy, upon the complicated processes hidden within the cranium. At any rate the determination that man is a vehicle for the transmission of force establishes his station in the universe, and is a far step in advance of ancient conceptions. Nor does this supposition invalidate his claim to the highest place in nature.

Dr. Dercum has stated the case succinctly and has compressed into small form the essential steps of the argument.

SURGERY

Edited by ARTHUR W. ELTING, M. D.

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THE INTERURBAN SURGICAL SOCIETY

On November 25, 1921, the Interurban Surgical Society was entertained at the Albany Hospital by Dr. Arthur W. Elting, Professor of Surgery at the Albany Medical College. The society was organized about ten years ago. Its purpose is to promote interest in clinical and scientific surgery. At present there are thirty-two members, chosen from those engaged in the active practice of surgery and who have official connection with the surgical departments of active medical schools. The meetings, lasting two days each, are held twice a year and are usually largely clinical in character. The principal medical institutions of the United States and Canada are represented, the membership embracing surgeons from Montreal, Toronto, Rochester (Minn.), Chicago, Cleveland, Iowa City, St. Louis, Baltimore, Philadelphia, Boston, New York and Albany.

At the recent meeting at Albany, Friday morning was devoted to surgical clinics by Dr. Arthur W. Elting, Dr. John A. Sampson and Dr. George E. Beilby, who performed the following operations:

Dr. Sampson: (1) Laparotomy, ovarian cyst; (2) hysterectomy, adenoma of endometrial type.

Dr. Beilby: Three cases of exophthalmic goitre.

Dr. Elting: (1) Hysterectomy, malposition; (2) umbilical hernia; (3) exploration of abdominal tumor; (4) gall bladder and appendix; (5) gastro-enterostomy and herniotomy; (6) excision of angiomatous veins of thigh and penis; (7) fistula in ano, amputation of cervix; (8) fistula in ano; (9) Whitehead operation for hemorrhoids and fissures.

At the close of the clinics Dr. George E. Gorham demonstrated an improved invalid bed.

A luncheon was arranged at the hospital by the superintendent, Mr. W. D. Rockefeller, with the co-operation of graduate and pupil nurses. At the close of the luncheon Mr. Rockefeller spoke briefly on the subject of hospital management, based on his experience in the Albany Hospital during the past year.

In the afternoon Dr. John A. Sampson gave a lantern slide demonstration of the pathological changes arising from adenomata of endometrial type, with particular reference to their development and their invasion of the intestinal tract. Twelve cases were reported, in which the rectum or sigmoid was involved in eight instances, the appendix in four and the small intestine in two. (The text of Dr. Sampson's contribution is to be published in the *Archives of Surgery*.)

Dr. Clinton B. Hawn spoke in a conservative manner of the experiences of the medical service of the Albany Hospital with radium therapy.

Dr. Thomas Ordway referred briefly to the effects of radiations of radium on protein metabolism with particular reference to the bulk of tissue autolyzed.

Dr. L. W. Gorham showed the similarity of the clinical picture of coronary thrombosis and certain acute surgical abdominal conditions. So close a resemblance has occurred that some cases of this heart affection have actually been operated upon for "acute abdomen."

Dr. Victor C. Jacobson discussed the theories of the pathogenesis of Hodgkin's disease and other inflammatory and neoplastic disorders of the lymph glands. (Dr. Jacobson's paper has been published in the *ALBANY MEDICAL ANNALS* of December, 1921.)

In the latter part of the afternoon the members of the society visited the laboratory of the New York State Department of Health where a series of papers and demonstrations had been arranged by the director of the laboratory, Dr. A. B. Wadsworth, and members of his staff, illustrating the routine and research work of the laboratory.

Members of the society met at the home of Dr. Elting before attending dinner at the Fort Orange Club.

The next morning was given to a visit to the Research Laboratory of the General Electric Company at Schenectady, where Dr. Willis R. Whitney, director of the laboratory, assisted by Dr. W. D. Coolidge and other members of the staff, demonstrated to small groups the various activities of this great research department and later gave short lecture demonstrations of the theory and application of the electron. Luncheon at the Mohawk Club followed and at the urgent request of members of the society Dr. Whitney told of the origin and development of the Research Laboratory.

ELECTRONS

Our purpose in this colloquium is to group brief papers about electrons. A great deal of theoretical and practical work has been done on the subject, and it seemed wise to let it serve as the thread which would run through and connect the several topics to be treated.

Perhaps a suitable definition of the electron can only be found in the combined papers themselves, but a bold and brief statement might be that the electron is a negative corpuscle of electricity, or, better, a disembodied electrical charge. It is a finite unit, not further divisible. Its inertia acts as though it weighed about one eighteen-hundredth as much as a hydrogen atom, but as inertia is a property of electricity, even this mass does not indicate the presence in the electron of anything else than electricity.

We say that matter is made up of atoms, but all atoms are apparently made up of electrical quantities alone, and while we have positive and negative, there is but one quantity in this electrical unit. We call the negative unit *the* electron. The residue of an atom after an electron is

separated from it is a positive ion. Our knowledge first came through phenomena in vacuum lamps, electrical conductivity of gases, the complicated radiations from uranium, radium, etc., and from X-rays.

When the idea of a single negative electrical unit, as the thing behind most electrical affairs, once got started, it rapidly grew. There were many fields, chemical, electrical, and mechanical, where it seemed to dominate.

The atoms of all matter consist of these identical electrical units positive and negative, or, better, the positive ion and the electron, and so everything we see is electrical. The magnitude of the units is known. The number for any electrical effect is known, and even their arrangement in space, as they constitute the atoms of different elements, is becoming known.

The chemical and physical properties of all chemical elements are periodic functions of the atomic weights. Taking all the elements in order of rising weights of atoms, the properties generally vary *regularly*, and recur regularly. Every eighth element resembles the preceding eighth, and it also discloses a progressive change, or accumulation, from group to group. As the weights rise from element to element, the properties gradually change, just as though a step-like alteration had been made in composition. This has always encouraged the search for a protyle matter. It seemed as though there must be a unit substance from which all elements might be successively built up by merely using more and more of it. This component is found in the elementary charges of electricity.

Each element differs from the one of lower atomic weight by a single electrical pair of units combined in form somewhat like a single helium or hydrogen atom. The time-worn terms, negative and positive element, now come in use again, in fitting place. Sodium, a positive element, and fluorine, a negative element, differ in the described simple manner from the inert or neutral element neon, which also lies just between them in the periodic list. Sodium tends to give off an electron; fluorine tends to take one up, and neon is neutral. Any isolated atom contains equal amounts of $+$ and $-$ electricity. Let the atom lose an electron and it is a positive ion, heavier and less mobile than the electron.

As the other speakers will show, the hot filament of the various vacuum devices now used in wireless gives off these electrons and is useful for this reason. When light falls on such metals as zinc or potassium, electrons are emitted, and this gives us our photoelectric cell. When X-rays strike any surface, electrons are discharged from it, and in this way they also set free ions even from air or gaseous molecules. When electrons pass through gases at high speed, they also ionize the gas; that is, liberate electrons from the molecules. All our X-rays are produced by the impact of moving electrons; that is, by their stoppage. When elements decay, as radium and a few others do, they give off electrons. When electrons move within a wire, they constitute the electric current, and when an electric current passes through any solution there is a corresponding motion of atoms carrying charges of these same electrons. The slight conductivity of the atmosphere is due to a few of these electrons, and the number is greatly

increased by the action of X-rays, or radium, upon the air. The numbers of electrons thus produced may be actually counted by simple means. The quantitative methods which have led to counting and measuring electrons in their different occurrences have given wonderful security to the whole electronic conception.

When it was thus possible to look at electricity as a collection of units, alike, and countable with accuracy, instead of as a continuous fluid, for example, it also became possible to thereby determine many other physical values. Thus it led directly to a determination of the number of molecules in a volume of any gas and the number of atoms in a given weight of any material. This answer agreed with that obtained by other methods. Later on, the shape and size, and even the arrangement of atoms in space, became evident. It is not too much to say that, just as with X-rays and wireless waves, light itself is due to the changes in motion of electrons, and, finally, what we call mass itself is due to the inertia of these electric charges. In other words, the weight of anything is merely the quantity of electricity it contains.

WILLIS R. WHITNEY.

THE PRODUCTION OF X-RAYS OF SHORT WAVE-LENGTH

An X-ray generating outfit is a mechanism for liberating electrons, bringing them up to high speed and then suddenly stopping them.

To produce X-rays we set these electrons free in space which is otherwise as empty as we can make it and then treat them just as we do the pith ball in the classical experiments on static electricity. We connect the cathode to the negative terminal of a static machine or other source of high tension current and the anode to the positive terminal. The electrons, like negatively charged pith balls, are then repelled from the cathode and attracted to the anode.

The reason for choosing the empty space is that otherwise the electrons would collide with obstacles on the way and would not attain the full velocity which they get if they cover the whole distance without interruption.

The velocity imparted to the electron in its course from cathode to anode is determined by the voltage applied, increasing with the latter. It may be made to approach more and more nearly to the velocity of light, which it can never exceed.

When the electron, plowing its way through the empty space of the bulb at a velocity of say 100,000 miles per second, meets the face of the anode or target, it meets no solid obstacle, but rather one of great porosity, although tungsten is one of our densest metals. Very rarely an electron will collide with the relatively massive nucleus of a tungsten atom. In this case the electron will be very suddenly stopped and we will get X-rays of the shortest wave-length obtainable with this voltage. There is a perfectly definite relation between this shortest wave-length and the voltage which produced it, so that a knowledge of either quantity tells us the other.

In other cases the high speed electron is more gradually slowed down, giving X-rays of longer wave-length.

The X-rays produced by the slowing up of the high-speed electrons are in no wise characteristic of the target metal and are, in wave-length, entirely independent of it. They constitute what is known as the general radiation.

Others of our high speed electrons will disturb the equilibrium of electrons composing the tungsten atoms and these will vibrate with a frequency of their own. In this way we get X-rays which are characteristic of the tungsten atoms. These have perfectly definite wave-lengths and tell their own story concerning their origin.

The wave-length of the characteristic rays grows shorter, as you have seen, with increasing atomic number of the target metal, reaching its minimum in uranium, where it is 0.105 angstroms instead of 0.179 as for tungsten.

Some of the high speed electrons entering the target metal are deflected in their course by the attraction of the positive nucleus of some tungsten atom and fly out again with essentially the same speed that they had when they entered the target. They may come out with the same velocity of 100,000 miles per second and headed straight for the cathode from which they came originally. But they cannot touch it, because it is negatively charged and repels them. Nor can they go to the glass, for it is negatively charged also. All that they can do is to turn back and hit the target again. Some of them must even meet in the target the same reception that they did the first time. But they will again be forced to return to it.

If the anode were made of thin metal foil set into the wall of the glass bulb, many of the electrons would shoot right through it without appreciable loss of velocity and would come out into the air. These streams of electrons would then be identical with those of the β -rays of radium having this same velocity.

You will see from the preceding that even though the electrons may all have the same velocity as they approach the target, the resulting X-rays will differ widely among themselves in wave-length. This is unavoidable, as it is due to the porous and complex structure of matter.

The longer wave-length radiations are more easily absorbed in their passage through matter than those of the shorter wave-length, and this gives rise to the use of X-ray filters. These do not give us shorter wave-lengths, but merely subtract long wave-lengths.

How then are we to produce shorter wave-lengths? We have seen that there are two kinds of X-radiation, the characteristic and the general. To get characteristic radiation of the shortest possible wave-length we must use as target the element having the highest atomic number. This is uranium. We now have it in suitable form to work with. But during the last year, while we have been learning how to produce uranium, we have also learned how to make X-ray tubes for a voltage so high that the general radiation becomes much shorter in wave-length than even the characteristic radiation of uranium.

We have then lost interest in uranium and from now on know that we have but one way to further decrease X-ray wave-length and that is by raising voltage.

We are now working experimentally with 300,000 volts and getting ready to go higher.

From the recent work of Ellis in England, we should get at 400,000 volts, X-rays like the γ -rays of Ra-B and at 3,000,000 volts X-rays like the γ -rays of Ra-C.

A voltage as high as 3,000,000 could probably be produced, and, if a suitable tube could be developed, it would probably be possible to operate it from such a source in oil, not in air, as the spark length would be close to thirty feet.

X-rays of all wave-lengths undergo absorption in passing through matter, but the absorption decreases rapidly with wave-length. For this reason, there is an incentive to use higher voltage whenever it is necessary to get radiation to pass through thick layers of matter. To illustrate, we get five times as much radiation through 8 mm. of copper at 300,000 volts as at 200,000 volts for the same amount of energy supplied to the tube.

Dr. Duane in a recent paper reports that when using radium emanation with a filter of 3.7 mm. of Pb. he gets 44.5 per cent of the radiation through 10 cm. of water. With X-rays produced by 109,000 volts, and using a filter of 3.0 mm. of Pb. he gets only 15.4 per cent through 10 cm. of water. With X-rays from 200,000 volts and with a 10 mm. cu. filter we have had a penetration of 18 per cent and at 250,000 volts of 24 per cent. Even though we may not be able to go up to 3,000,000 volts we may well be able to go high enough to very materially increase the amount of X-ray energy which can be transmitted through different media.

Another lure in connection with the attempt to construct a suitable X-ray tube and to operate it at high voltages is the following: The high speed electrons, or the X-rays produced from them, might well cause useful inter-atomic rearrangements in the target metal. This would be in line with what we actually see going on spontaneously in the case of the radio-active substances.

W. D. COOLIDGE.

ATOMIC STRUCTURE

OLDER VIEWS OF ATOMIC STRUCTURE THEORIES

During the nineteenth century, the atomic and molecular theories, in spite of their utility in accounting for so many properties of matter, were not regarded very seriously by most physicists and chemists, and a notable school of the latter, headed by the German chemist, Ostwald, even went so far as to consider these theories as a dangerous and pernicious influence on the progress of science.

Those who did believe in the existence of atoms looked upon them as hard, elastic spheres of infinitesimal magnitude, the ultimate indivisible units of which all matter is built up.

NUCLEAR THEORY OF ATOMIC STRUCTURE

The past quarter of a century has, however, radically altered this state of affairs. Not only have we become convinced of the existence of atoms and molecules, and are actually examining their microscopic arrangement in what we see microscopically as crystals, but we know accurately how many molecules are contained in a drop of water or a cubic cm. of the air that we breathe. We have even gone beyond this into investigating the "insides" of the atom itself. To borrow from the language with which you are familiar, we have dissected the atom to understand its anatomical structure and we understand a great deal more about the varied phenomena of metabolism within the atom than we do about similar processes in the human body.

The first constituent of the atom to be isolated was the electron, of which Dr. Whitney has already spoken and about which you will hear more from Mr. Mackay. The electron is the ultimate unit of negative electricity. It is the smallest electric charge which can exist as such. Its

mass is only $\frac{1}{1845}$ of that of a hydrogen atom, which as you know, is itself the smallest unit of matter with which we are familiar. The atoms of the different elements contain different numbers of these electrons, and, since ordinary matter is electrically neutral, it follows that somewhere in the atom there must exist a positive charge of electricity which is exactly equal to the total number of electrons present.

How are these electrons arranged within the atom and what relation does this arrangement bear to the positive electricity in the atom? The answer to these questions is the subject of my brief discussion this morning. But before proceeding with this I am going to ask you to turn, as it were, to the last page of the novel and read the denouement, the "live-happy-ever-afterwards" of the negative and positive electricity in the atom.

Our present view is that the positive electricity is all concentrated at the center of the atom and that the electrons are arranged in different spherical shells around this center. The electrons may be either stationary or rotating in small orbits about certain mean positions of equilibrium. We are not yet certain which of these theories is correct, but we are certain that the positive electricity is all at the center and the electrons arranged around this center.

The positive charge at the center of the atom is known as the *nucleus*, and this theory of atomic structure has therefore been designated as the nuclear theory of atomic structure.

Let me mention briefly the experiments which have led not only to the conclusion that the atom has a nuclear charge, but have also enabled us to determine roughly the charge on the nucleus. You are all no doubt more or less familiar with the wonderful phenomena of radioactivity. The elements which exhibit these phenomena consist of atoms which are actually disintegrating by the expulsion of positively and negatively

charged particles from their nuclei. The positively charged particles carry two unit positive charges, have the same mass as helium atoms, but differ from the latter in being positively charged instead of electrically neutral. They are known as *alpha particles* and are simply helium atoms which have lost two electrons. Now when these alpha particles are allowed to strike a thin sheet of gold foil, a large number of them pass right through without any noticeable deviation in their paths, but others are deviated more or less, as if they had approached very closely to some other positive charge in an atom of gold, for, as you will remember, positive charges repel each other, and therefore the scattering, as it is designated, of the alpha particles, when they pass through gold or other metals, must be due to positive charges in the atoms of the metal. By studying the laws of this scattering, Rutherford arrived at the conclusion that occasionally the alpha particle must approach another positive charge at a distance which is much smaller, in fact 100,000 times smaller than the diameter of the atom of gold itself, and that therefore the atom must be a quite diffuse structure: indeed, it must be mostly empty space.

In much the same manner some extra-terrestrial astronomer, observing the path of Halley's comet in space, but not knowing of the sun's existence, would, from the laws of dynamics, arrive at the conclusion that somewhere in space there must exist a central body which exerts an attractive force on the comet, and he would be able to calculate what the mass of this central body must be and how close the comet would approach the latter. Rutherford was able, therefore, to calculate not only the minimum distance of approach between the alpha particle and the positive charge at the center of the atom of gold, but also the magnitude of this positive charge. By studying different metals, the striking result was obtained that the number of positive charges on this nucleus corresponds to the place of the element in the Periodic Table.

The fact that the majority of the alpha particles could pass through a thickness of metal representing a layer thousands of atoms deep, is also in accord with this conclusion and we must therefore imagine the atom to be more like a miniature solar system with nucleus and electrons playing the role of sun and planets respectively. Only the diameter of this solar system, instead of being 180 million miles, is so small that 100 million stretched out in a line would measure between 1 cm. and 1 inch.

This conclusion regarding atomic structure was confirmed much more accurately by Moseley by the following method:

The X-rays emitted by different metals as anode in an X-ray tube form very characteristic spectra, consisting of certain definite wavelengths, as shown on the blackboard. Now what Moseley observed was this: If these characteristic spectra of the different elements are compared they are found to exhibit a regularity corresponding to their place in the Periodic Table. The shortest wave-length present in the spectrum of any element decreases as we go from one element to the next in the Periodic Table and according to a definite law.

It was, of course, impossible to make anodes of such elements as H, He,

Li, Be, or N, O, F, Cl, and other gaseous or low melting point elements. But by assigning to aluminum the 13th place in the Periodic Table, which is its location according to all our previous knowledge, Moseley was able to show that all the other elements must follow in the order given by the Periodic Table, and that only three elements are missing, that is, have not yet been discovered.

By this epoch-making result, Moseley was able to determine definitely that the nuclear charge for any element corresponds to its place, or number, in the Periodic Table.

We have already mentioned that besides the positive nucleus, the atom also contains negative particles or electrons in sufficient number to equal the positive charge on the nucleus. The mass of the electron, as mentioned already, is only $\frac{1}{1845}$ of that of hydrogen atom. Now the heaviest element, *uranium*, has ninety-two electrons in its atom and a positive charge of ninety-two on the nucleus. It is evident that even ninety-two electrons cannot weigh very much, only about one-twentieth of the weight of a hydrogen atom. On the other hand, the atom of uranium has a mass which is 238 times as great as that of the hydrogen atom. This mass must therefore belong to the nucleus, which is, as we have seen, extremely minute compared even to the atom. Its diameter is at most not greater than one one-hundred-thousandth of that of the atom itself. The idea that what we measure as mass may be really a manifestation of the positive electricity itself has received favor; in fact, we know that the mass of the electron is largely due to its electric charge, but to dilate upon such conceptions would take us too far afield.

The nuclear charge or atomic number is the most important criterion of the element. The chemical and most of the physical properties of the atom are governed by the magnitude of this positive charge. Atomic weight is only a secondary consideration. Arranged around this nucleus are the electrons, corresponding in number to the atomic number or nuclear charge. Manifestly, the arrangement of these electrons in different atoms must in some manner account for the different physical and chemical properties exhibited by different elements. Dr. Langmuir, of this laboratory, basing his ideas on some earlier speculations of Professor G. N. Lewis, has developed a theory of the arrangement of electrons in atoms which has proved extremely fruitful in accounting for the hitherto inexplicable differences in chemical behavior of the different elements.

To understand the underlying principles of Langmuir's theory, let us consider briefly the group of elements known as rare gases, Group O of the Periodic Table. We find that the number of electrons in these elements are:

He	2
Ne	2+8
Ar	2+8+8
Kr	2+8+8+18
Xe	2+8+8+18+18
Rn	2+8+8+18+18+32

These elements are chemically inert. They are extremely stable and they do not part with their electrons readily. Evidently there is something about the arrangement of electrons in them that makes them extremely stable.

Let us consider, on the other hand, elements which are quite close to these. Thus Na has one more electron than Ne, and F one less. Now we know that Na is a very electropositive element. In solutions of NaF, the Na gives up one electron very readily and forms a positively charged residue or ion Na^+ .

Similarly F readily takes up one electron and is said to be highly electro-negative. In solutions of NaF, the F is present as F^- (ion).

But Na when it gives up one electron and forms Na^+ must be left with the same number of electrons as Ne; similarly F when it takes up an electron and forms F^- has the same number of electrons as Ne.

In a similar manner Li tends to give up one electron and Li^+ must therefore have the same arrangement of electrons as He.

Evidently the extra electron in Li is located differently from the two electrons in He. The extra electron in Na is differently located to the electrons in Ne. On the other hand, F, Cl, Br, etc., have a very great tendency to take up an extra electron, presumably because by this method the electrons will assume the same arrangement as in Ne, Ar, and Kr respectively.

Now let us describe briefly the arrangements suggested by Langmuir for the electrons in some of the more common elements. Hydrogen, since it is the element of lowest atomic weight, must be represented by an atom containing unit positive charge and a single electron. When another electron is added, the charge on the nucleus becomes two units of positive electricity and there two electrons and the nucleus form an extremely stable atom, that of helium. Considerations of symmetry and the well-known chemical inertness of helium lead us to conclude that these two electrons are situated at the opposite poles of a sphere described around the nucleus.

Since lithium has an atomic number 3, it must have one electron more than helium, and a positive charge of three units. The electro-positive character of this element means, as stated above, that lithium tends to get rid of an electron quite readily. We are therefore led to conclude that in this atom, the third electron is situated *outside* the other two electrons, so that by giving up this electron the atom becomes lithium ion (Li^+). By successive additions of electrons in the same spherical shell as that of the third electron in Li, we obtain Be, B, C, N, O, and F. In the case of carbon, we thus have four electrons in the external shell and in forming compounds the tendency is for this shell to become completed by addition of four more electrons which it is evident can be supplied by four H atoms, forming CH_4 . Similarly O lacks two electrons to complete its external shell of eight and therefore combines with two H atoms to form H_2O . Fluorine with only one place missing is extremely electro-negative and takes up an electron from Li to form LiF .

In neon with eight electrons in the external shell we again reach a very stable formation. Neon is therefore chemically inert. The next eight elements in the Periodic Table, from Na to Ar, form a series in which the electrons are arranged in a third layer similar to the second.

With K we begin to form a fourth layer; but in this case we have eighteen electrons in the same shell and the same arrangement is repeated in a fifth layer of eighteen. This brings us to Xe which has two electrons in the innermost shell; eight in the second, eight in the third, eighteen in the fourth and the same number in the fifth.

The next element in the Periodic Table which resembles Xe is radium emanation. Here we have a sixth shell of thirty-two electrons, and a total of eighty-six electrons in the atom corresponding to a positive charge on the nucleus of eighty-six units.

Theoretically, the next element resembling radium emanation would contain a seventh shell of thirty-two electrons, but only the first six elements are known, so that ninety-two electrons represents the maximum number of electrons observed in any atom. Apparently nature could go no farther.

S. DUSHMAN.

THE ELECTRON TUBE AS USED IN WIRELESS COMMUNICATION

Much has been said and written during the past few years about the electron and some of the theories built up around it, but why is it that a manufacturing concern like the General Electric Company is so interested in producing these electrons under the proper conditions and in putting them to work? One answer is: because by their aid there can be accomplished results that no other form of electrical apparatus can accomplish and therefore they can do new things as well as old things in a better way.

We will take up first what these particularly unique and useful properties of the electron are and, secondly, how we utilize them and the form of apparatus in which they are used.

The electron is the unit of electricity and the passage of a very large number of them between two points constitutes an electric current, flowing, as we commonly state it, between these two points.

The amount of electricity that each carries is very, very small, and it would require billions and billions of them passing in a stream per second to constitute the small current taken by even an electric doorbell.

In common with any small unit, the velocity with which they can move depends upon the force exerted upon them. In the case of the electron this force exerted upon them to cause them to move, is in the form of a voltage between the two points of flow.

With voltages of tens or hundreds of thousands, such as used in these devices, the velocity of the electrons is very high, thousands of miles per minute.

Each electron and therefore a moving stream of billions of them can be deflected in its direction of travel and its velocity in a given direction changed by an electric or magnetic field.

These three properties, small amount of charge, high velocity of travel and control of flow by an electric or a magnetic force, give in turn three characteristics to a proper piece of apparatus incorporating them that in combination result in a unique piece of electrical equipment.

(1) The first of these three unique characteristics is that the operation of the device itself on alternating current is independent of the frequency of the alternations of that alternating current. An electron tube, as far as the tube itself is concerned, will function just as well on a ten-cycle current or a one million-cycle current as the sixty-cycle current used most commonly for electrical lighting circuits. This is because the extremely small mass of the electron gives it such an extremely small amount of inertia that it can move or change its direction of movement freely at rates corresponding to the very highest electrical frequencies that are in use today.

(2) The second unique characteristic of an electron tube is its ability to pass or control a flow of electric current so as to furnish any complicated form of that current. This current may be cut off in a millionth of a second or slowly and uniformly varied at a predetermined rate or again made to reproduce absolutely the extremely complicated form of electric current that is sent over a wire by a telephone transmitter actuated by the human voice. This characteristic of the electron tube device is also attributable to the small charge of each electron unit and their extreme mobility under an electric or magnetic field.

(3) The third unique characteristic of an electron tube is the ease with which the control of the electric current passing through it is affected. A minute amount of electrical energy properly applied can control a current representing electrical energy thousands of times greater than the controlling energy. This is possible because of the property of the control of the movement of the electron stream by an electric or magnetic force as has been previously noted.

These three characteristics, when properly incorporated into an electron tube, or simply a vacuum tube, as it is commonly designated, constitute an electrical device which is unique in the field of electrical engineering.

The electron tube up to the present has found its principal field of application in the realm of wireless communication. This is but natural because high frequency alternating current and the extremely minute amounts of electrical energy which are intercepted by a far distant wireless receiving station are the very characteristics which the electron tube is particularly suited to handle. It is also widely used in long distance telephony to increase the strength of the electric currents which are weakened by the resistance of many hundreds of miles of wire and require reinforcement to render the transmitted speech audible in the distant telephone receiver.

As time goes on it is certain that electron tubes will find wider and wider application in various branches of electrical engineering and all electrical engineers will be familiar with their characteristics.

Now as regards the electron tube itself which accomplishes these things. The term electron tube or vacuum tube is a generic term. We make such tubes in many forms, kenotrons, pliotrons, dynatrons, pliodynatrons and magnetrons, each having a different construction or mode of operation. We cannot attempt to describe each in detail but they all have certain fundamentals in common.

An electron tube must have in it a source of electrons which in its most common form consists of a filament made incandescent by an electric current. This filament, when raised to the proper temperature, gives off electrons from its surface.

Another essential of an electron tube is that it must be exhausted to a very high degree of vacuum. This is necessary to enable electrons to flow freely and be controlled in the proper manner by an electric or magnetic field.

A third fundamental necessity is an electrode, called the anode or plate, which receives the flow of electrons.

The electron tube is inserted in an electrical circuit and carries the current of this circuit in the form of a stream of electrons. The electrons, of course, flow through the complete electrical circuit consisting perhaps of wires, coils, instruments and other items, but in the vacuum inside the electron tube is the only portion of the circuit where they constitute what might be termed free electrons and can be made use of in the way described. This link in the circuit can then be made to absolutely control in any desired way the current of this circuit by an electric or magnetic field inside the electron tube. This is accomplished by one or more extra electrodes in the tube or by placing the tube in the controlling magnetic field.

There are also many other secondary effects which give added properties or give rise to new forms of electron tubes which however, although important, are too involved to be here considered.

To indicate that electron tubes are past the experimental stage it is only necessary to state that during the past year nearly one hundred thousand such tubes have been manufactured by the General Electric Company.

W. C. WHITE.

ELECTRONS AND MATTER

Many experiments involving the use of different methods have shown that electricity has a definite granular structure, and the individual particles now can be weighed and measured with as great an accuracy as the chemist requires in his analyses. The most striking and clean-cut demonstration of the existence and behavior of these unit individual quantities of electricity, or the electrons, was made by Millikan in Chicago in 1909.

Oil atomized into microscopic drops was blown into a cylinder where they could be acted on by radium rays and observed through a telescope when illuminated by a strong beam of light. Two plates in the cylinder were maintained at different voltages, and it was found that when drops

became charged, due to the action of the radium, they could be held in mid air or be made to move upwards against the force of gravity or downwards with different velocities produced at will by varying the voltage of the two plates. Knowing the rate of fall of an uncharged drop, and measuring the velocity of a charged drop at definite voltages, the quantity of electricity caught could be measured very accurately. It was found that this quantity always varied by steps, never continuously, and a vast number of determinations established beyond all doubt the conclusion that an electrical charge wherever found, whether on an insulator or conductor, in electrolytes or in metals, has a definite atomic structure and consists of an exact whole number of particles all exactly alike. These particles are electrons.

You have already heard that all material things contain electrons. This is demonstrated (1) by the spontaneous discharge of electrons from radioactive elements, (2) by the loss of electrons from metals when acted on by radiation, such as visible or ultra-violet light or X-rays, and (3) by the emission of electrons from metals when heated.

The second case is of particular interest because it is just the reverse of what occurs when X-rays are generated in a Roentgen tube. If ordinary light falls upon clean potassium, it will be found that the metal becomes positively charged because electrons are shot off from the surface. The number of electrons given off is sufficient to operate a delicate galvanometer, even when the light is very weak, so that an instrument for measuring light can be made on this principle which is more sensitive than the human eye, and can be usefully applied to the study of light from the distant stars as well as to the photometry of ordinary light sources.

Many substances show this effect, though to varying degrees, but they differ in their sensitivity toward different kinds of light. Thus Zn and Cd give off most electrons when illuminated by ultra-violet light, lithium by the violet end of the visible spectrum, potassium by the blue, and caesium by the green.

Further it is found that the escaping electrons leave with a velocity which increases as the wave-length of the light decreases. When the waves become extremely short, or X-rays, the electrons leave the metal with very high velocity. In fact, they leave with the same velocity as required by an electron in an X-ray tube to produce the X-ray light.

Electrons in a metal may also be driven off by the application of heat, and in this respect they behave very similarly to a substance when it evaporates. Their escaping tendency varies according to the same general law which applies to vapor pressure. Thus at any definite temperature there is a definite electron emission, and the higher the temperature the greater the number of electrons which can escape. Thus, at a temperature equal to the melting point of platinum, we can obtain in a high vacuum a maximum number of electrons per square centimeter of tungsten surface corresponding to a current of four milliamperes, four hundred degrees higher at the temperature of an ordinary forty-watt lamp filament, about one-third of an ampere.

Electrons differ, however, in a very important way from the atoms of evaporating metals. They all carry a negative charge of electricity. They, therefore, repel one another, so that the first electrons which escape tend to prevent others from leaving the surface. It is, therefore, necessary to apply a voltage which draws away the electrons as fast as they escape from the metal.

From tungsten at any one temperature the current increases for a time with voltage until a saturation value is reached, which is the maximum obtainable no matter how high the voltage goes. If a greater current is desired, the temperature of the metal will have to be raised. The filament, however, cannot be heated high enough to give off very large currents on account of the rapid shortening of its life by evaporation.

Tungsten has the highest melting point and lowest vapor pressure of any metal yet discovered, so these qualities make it most desirable for lamp filaments and electron tubes.

Now, so far, only the unit of negative electricity has been considered. This, however, is responsible for the carrying of all the current in a wire, or in a high vacuum when there is a source present, such as a hot filament to provide electrons. The passage of a current might, of course, be due to either the movement of negative charges alone, positive charges, or to both together as in electrolysis.

If a small amount of gas, such as argon, is admitted to an X-ray bulb with a hot filament, it is found that a brilliant glow is produced, and that a large current can be carried with quite low voltages. Forced by the voltage across the tube, the electrons smash into the atoms of gas and knock them into two parts, oppositely charged, thus making two more particles to carry the current. These in turn explode more atoms so that the number of current carriers rapidly increases, and a lower voltage will be sufficient to carry a large current. The two parts into which the atom is split and which conduct the current are an electron and a positive ion which consists of the rest of the atom with a positive charge and several thousand times the mass of the electron. In the conducting gas the electron tries to move towards the positive electrode or anode, the positive residue of the atom to the negative electrode or cathode, but they are continually being thrown out of their direct path by frequent collisions, and their own random velocities due to thermal agitation. In this general mix up some of the positive and negative ions come together again, and when they do so, light is emitted, just as when an electron is brought to rest by the target of an X-ray tube.

When the pressure is low, the discharge fills the whole tube; when the pressure approaches that of the atmosphere, the discharge becomes concentrated and the so-called arc results.

In the presence of gas, however, a hot cathode is not necessary to start a discharge if comparatively high voltages are available, because if any free electrons or ions are present, they can always be used to generate more of their kind, and there are always some ions in every gas as well as

in ordinary air, though the number is usually quite small. Thus in every cubic centimeter of the atmosphere, which contains twenty-seven billion billion molecules, there are several pairs of ions present, formed, perhaps, by the bombardment due to electrons from radioactive minerals in the earth's surface. So, if a high voltage is applied to the cold electrodes of an X-ray tube which contains some gas, these ions will be speeded up to knock the atoms and molecules to pieces with the production of a rapidly increasing number of conductors, and the heavy positive ions striking against the cathode will generate electrons from the metal there. Thus starting with a very few ions, electrons can be easily manufactured out of the gas and the negative electrode, thence shot to the positive electrode where they will produce X-rays just as in the Coolidge tube. If the discharge is allowed to run continuously, without limitation of current, the energy, liberated at the cathode by the big positive ions smashing into it, quickly heats it up so that in the end electrons are emitted from it thermionically. Such a method, however, is much less definite in regulation than when high vacua and hot filaments are used.

In the Coolidge X-ray bulb with its high vacuum, current can only pass in one direction no matter how high an alternating voltage is impressed on the terminals, provided that the anode remains cold. Thus, such a tube can be made to act as a rectifier of alternating current. But the current which can be obtained is less than an ampere because if the thermionic emission is made higher, the life of the filament is shortened by the high temperature necessary. Further, the voltage required to overcome the mutual repulsion of the negatively charged particles is fairly high.

If, however, argon at a few centimeters pressure be introduced, the positive ions formed by collision with the electrons increase the emission from the filament by bombarding it, so that currents of several amperes may be obtained at very low voltages. Further, the presence of the positive ions near the hot cathode neutralizes the repulsion of the electrons for one another and makes it easier for a low voltage to carry the current across the tube. Such a device is very useful for charging automobile storage batteries by direct current from the alternating supply of an ordinary city circuit. About one million of these tubes known as Tungar rectifiers have already been made for such service.

In this tube, the anode must, of course, be kept cool, otherwise the current will pass in both directions. At higher gas pressures the discharge becomes more concentrated and develops into what we know as the ordinary type of arc, where there is usually no objection to both electrodes becoming hot. In the ordinary carbon arc lamp the cathode is heated by bringing the two electrodes into contact with one another and then drawing them apart, after which the bombardment by positive ions keeps the negative carbon hot. The positive which gives most of the light is heated by the impact of electrons.

G. M. J. MACKAY.

A BRIEF REPORT ON THE USE OF RADIUM AT THE ALBANY HOSPITAL

From March 1, 1921, to December 1, 1921

In March, 1921, the Board of Governors of the Albany Hospital purchased one hundred milligrams of radium in steel needle containers for therapeutic use in the Albany Hospital. The administration of this radium was placed in the hands of the medical service, consisting of Doctors Ordway, Gorham and Hawn, to be used under their direction and in consultation with the attending physicians of the other services of the Albany Hospital.

It seemed to be desirable that the radium effects should be observed by the staff of the Albany Hospital, and it was not the wish of the Board of Governors that the use of radium should be commercialized to any degree. This placed its use in a rather unique position, inasmuch as it was not being used in a cancer institute, nor was it in the hands of a single individual, but rather a department of a general hospital on much the same standing that the laboratory and X-ray departments are placed.

In seven months to December 1, one hundred patients received treatments at the Albany Hospital. These one hundred patients have received a total of two hundred and fifty-three radium treatments. There have been ninety-six treatments for which no charge has been made. Many of the cases have paid only a minimum fee of five dollars or ten dollars per treatment, which, based on the charges in metropolitan institutions, would be many times that amount. The effort has always been to have the charges well within the means of the patient.

Some brief statements follow, which illustrate the use to which radium has been placed:

The largest number of conditions treated were superficial epitheliomata and basal cell carcinomata. Twenty-seven of these have been treated. The next most frequent have been carcinoma of the uterus, twelve; carcinoma of the bladder, eleven; carcinoma of the breast, eight; carcinoma of the prostate, five; carcinoma of the rectum, three. The balance of the cases were: keloids, Hodgkin's disease, hemangioma, keratoses and lupus.

Too small a series of cases has been treated and too short a time has elapsed for any very definite conclusions to be drawn in regard to the results obtained at the Albany Hospital, but it is felt that a distinct benefit is derived in many cases of carcinoma of the uterus and bladder, in that bleeding is controlled, pain is lessened and in some cases temporary improvement occurs. All of the breast, uterine, bladder and prostate carcinomata were either post-operative or inoperable cases.

There seems to be very definite improvement in the superficial epitheliomata, keloids and lupus. The glands in Hodgkin's disease have decreased in size and keratoses apparently completely cured.

CLINTON B. HAWN.

CURRENT EVENTS

Edited by WILLIAM P. HOWARD, M. D.

ALBANY DEPARTMENT OF HEALTH

STATISTICS, FEBRUARY, 1922

DEATHS FOR THE MONTH OF FEBRUARY, 1922

Bronchopneumonia.....	15	Scarlet fever.....	0
Pneumonia.....	14	Diphtheria.....	0
Cancer.....	15	Typhoid fever.....	0
Bright's disease.....	13	Deaths under one year.....	19
Tuberculosis.....	12	Deaths over 70.....	44
Apoplexy.....	11	Death rate (non-residents in-	
Accidents and violence.....	7	cluded).....	19.4
Influenza.....	5	Death rate (non-residents ex-	
Whooping cough.....	2	cluded).....	16.6
Diarrheal diseases.....	1	Births.....	179
Measles.....	0	Still births.....	3

DIVISION OF COMMUNICABLE DISEASES

Influenza.....	340	Scarlet fever..	5
Pneumonia.....	106	Typhoid fever.....	2
Measles.....	64	Trachoma.....	1
Chickenpox.....	54	Puerperal septicaemia.....	1
Whooping cough.....	26	German measles.....	0
Diphtheria and croup.....	23	Smallpox.....	0
Tuberculosis.....	15		—
Septic sore throat.....	8	Total cases reported.....	652
Mumps.....	7		

Number of days quarantine for scarlet fever:

Longest.....48 Shortest.....30

Number of days quarantine for diphtheria:

Longest.....45 Shortest.....11

Fumigations:

Rooms.....151 Buildings.....33

Milk bottles disinfected.....863

MISCELLANEOUS

Tuberculosis

Living cases on record February 1, 1922.....592

Cases reported:

By card.....11

Death cases by certificate.....4

— 15

607

Dead cases previously reported.....	8
Dead cases not previously reported.....	4
Removed.....	8
Died out of town.....	1
Recovered.....	0
Unaccounted for.....	0
	<hr/> 21
Living cases on record March 1, 1922.....	586
Total tuberculosis death certificates.....	12
Non-resident deaths.....	2
Resident deaths.....	10

LABORATORY REPORT

<i>Diphtheria</i>	<i>Meningococcus</i>
Initial positive..... 43	Positive..... 0
Initial negative..... 289	Negative..... 0
Release positive..... 86	Examinations..... 2
Release negative..... 401	Total..... 2
Unsatisfactory..... 23	
Total..... 842	
<i>Sputum for Tuberculosis</i>	<i>Wassermann Tests</i>
Positive..... 32	Positive..... 60
Negative..... 130	Negative..... 220
Unsatisfactory..... 0	Unsatisfactory..... 10
Total..... 162	Total..... 290
<i>Widals</i>	<i>Gonorrhea Examinations</i>
Positive..... 2	Positive..... 28
Negative..... 19	Negative..... 36
Unsatisfactory..... 2	Total..... 64
Total..... 23	Milk analyses..... 189
	Water analyses..... 0
	Pathological examinations.. 0
	Miscellaneous examinations.. 0
	Total examinations..... 1572

DIVISION OF MARKETS AND MILK

Public market inspections.... 20	Milk depots inspected..... 41
Market inspections..... 134	Inspections, stores selling milk 40
Fish market inspections..... 13	Dairies inspected..... 8
Slaughter house inspections... 1	Milk houses examined..... 8
Rendering establishment in- spections..... 1	Milk cans inspected..... 183
Pork packing house inspections 7	Milk cans condemned..... 0
Hide house inspections..... 2	Complaints investigated..... 3
Cows examined..... 78	Bacterial counts..... 90 lab.
Cows quarantined..... 0	Bacterial counts special... 4 lab.
Cows rejected..... 2	Chemical tests..... 2 lab.

THE ALBANY GUILD FOR PUBLIC HEALTH NURSING

REPORT FOR JANUARY, 1922

1. *Patients*.—Old carried from December, 800; new, 175; total, 975; dismissed, 491; carried into February, 484. Source of cases: Metropolitan Life Insurance Co., 40; doctors, 78; nurses, 14; dispensary, 6; family or friends, 29; other sources, 8. Classification of new cases: Medical, 81; surgical, 7; obstetrical, 43; tuberculosis, 29; venereal, 15.

2. *Visits*.—Total, 2076. Classified as follows: Nursing, general nursing, 1269; confinements attended, 43; post-partum nursing, 168; post-natal nursing, 177. Preventive: Prenatal, 79; post-natal welfare, 0; post-partum, 32; pre-school welfare, 44; T. B. (inst. and super.), 119; V. D. (inst. and super.), 11; cardiac, 0; observ. and super., 52; other purposes, 82.

3. *Disposition of Cases*.—Recovered, 40; improved, 30; unimproved, 12; to hospital, 8; dead, 3; to other care, 24; T. B., 374.

ACTIVITIES OF SOCIETIES

MEDICAL SOCIETY OF THE COUNTY OF ALBANY. —The regular monthly meeting of the Medical Society of the County of Albany was held in the Adelphi Club, 134 State Street, Albany, Wednesday, March 15, 1922. The meeting was called to order at 8:30 p.m. by Thomas W. Jenkins, M. D., president. Order of business: Reading of the minutes of the February meeting; reports of officers and committees; election of members; unfinished business; new business. Scientific program: "Fatal Hemorrhage from Gastric Polyp in an Infant," by Dr. Harry K. Tebbutt, Jr.; "Delayed Cerebral Hemorrhage, due to Traumatism," by Dr. John H. Gutmann. A luncheon was served after the meeting.

PUBLIC HEALTH INSTITUTE AT ALBANY, N. Y.

The United States Public Health Service co-operating with the New York State Department of Health will conduct a series of venereal disease clinics April 18 to 21 inclusive. There will be a two-hour clinic on syphilis each morning from 9 to 11 followed by a two-hour clinic from 11 to 1 on gonorrhea.

These clinics will be conducted by Dr. John A. Fordyce of New York, Dr. Henry H. Hazen of Washington, Dr. Grover Wende of Buffalo, Dr. Isadore Rosen of New York, Dr. Edward L. Keyes, Jr., of New York, and Dr. Guy Hunner of Baltimore.

COLLEGE AND HOSPITAL NOTES

Edited by CLINTON B. HAWN, M. D.

ALBANY HOSPITAL

The Board of Governors has found it advisable to institute a charge for each of the following types of examinations performed in the laboratories of the hospital:

Cultures.....	\$0.50	Creatinin.....	1.00
Urine.....	.25	Blood sugar.....	1.00
Sputum.....	.50	Non protein nitrogen.....	1.00
Blood cultures.....	1.00	Blood chlorides.....	1.00
Guinea pig inoculation.....	5.00	Carbon dioxide.....	1.00
Vaccines.....	5.00	Urine urea.....	1.00
Stools.....	.50	Urine chloride.....	1.00
Quant. urines.....	.50	Photograph of pathological specimens.....	2.50
Phthalein.....	1.00	Basal metabolism..	5.00 to 10.00
Mosenthals—regular.....	2.00	Electrocardiograph..	5.00 to 10.00
Mosenthals—modified.....	.50		
Blood urea.....	1.00		

The reason for this is the overhead expense of present-day laboratory work, due to the increased cost of salaries of sufficiently trained workers, and of all the materials necessary in performing the many complex tests required of the modern laboratory. The charges are nominal and are restricted to the more special kinds of examinations.

During the past year there has been a large number of examinations without any income whatsoever which would assist in supporting the laboratory. It seems undesirable to curtail the activities of the laboratory departments and it is the opinion of the Board of Governors that the revenue from the sources mentioned, while but an insignificant amount from the standpoint of each patient, will in the aggregate provide an income which would permit the laboratories to continue their work and in an increasingly efficient manner.

THE LEONARD HOSPITAL, TROY

The annual dinner and election of officers of the Medical Staff was held at the Troy Club, February 8, 1922. The following officers were elected: President, Frank T. Smith; vice-president, James H. Flynn; secretary, Stephen H. Curtis. Executive committee: C. B. Sprague, chairman; Alson J. Hull and Harry T. Wygant.

The bacteriological and pathological laboratory has been equipped with new apparatus and placed under the direction of Dr. Stephen H. Curtis.

ALUMNI NOTES

Edited by CHARLES C. DURYEE, M. D.

1857

★ Friday evening, February 24, 1922, Middleburg's oldest citizen, Dr. HENRY D. WELLS, entered into rest in his ninety-third year.

He was a native of this town having been born here in 1829, the son of Dr. Samuel B. Wells, a practicing physician of this village. He came from a family of doctors—besides his father he had an uncle, Dr. Linus Wells, who also spent his life here practicing medicine, and a brother, Dr. Scott Wells, of New York City.

He was educated at the Schoharie and Canajoharie academies but failing health prevented his taking a college course. Having regained his health sufficient to warrant him in resuming his studies he began reading medicine with his father in 1855. After attending two full courses of lectures at the Albany Medical College he graduated in December, 1857, at the age of twenty-eight. The next year, April 29, 1858, he married Miss Margaret Snyder of Herkimer county, and began housekeeping in the residence on Main street in this village, where he died. Following his graduation he practiced medicine successfully for thirty years, when having contracted blood-poison from conducting a post-mortem he was obliged to give up practice. After that he lived a retired life. He was a lifelong member of the Schoharie County Medical Society and took part in its deliberations as long as his health permitted. He was a very religious man. To quote from his own words written July 24, 1899: "The verdict of my life and experience is that surely goodness and mercy hath followed me all the days of my life and I will dwell in the house of the Lord forever."

The *Middleburg News* pays the following tribute to his memory: "Dr. Wells, in his life, was a model of all that a man should be—a gentle, kind spirit; helpful to his fellowmen with an innate refinement and a sterling honesty of character; a gentleman without fear and without reproach. His religion was not of the forbidding mournful sort. It was a sunny philosophy that was a constant inspiration to others. His was a Christian character without dross or sham. He lived a blameless life, enjoying the love and respect of all with whom he came into contact and the world is better for his upright example. Dr. Wells is gone, but the record he leaves will be a continual impress for good."

His funeral, from the Methodist church, Tuesday afternoon, February 28, was attended by a large concourse of relatives, neighbors and friends. His pastor, Rev. Leonard A. Bard, officiated. W. T. RIVENBURGH.

1874

★ Dr. ALEXANDER W. FAIRBANK, the veteran physician of Chazy, and one of the most widely known citizens of Clinton county, passed away at the Champlain Valley Hospital February 18, 1922, at the age of sixty-nine years, after an illness of less than a week with pneumonia.

Dr. Fairbank was born at Rouse's Point on December 19, 1852, being the son of Warren C. Fairbank and Sarah S. Stearns. He was educated at the public schools of Rouse's Point and the Academy at Champlain and afterwards at the Franklin Academy at Malone. After graduating in medicine Dr. Fairbank opened an office at Chazy, where he remained in active practice for forty-seven years, up to the week of his death.

Forty-five years ago, the nineteenth of June last, Dr. Fairbank married Miss Evelyn Little of Chazy, who survives him with three children, Mrs. Charles E. Fallman of Manchester, N. H., Warren L. Fairbank, Chazy, N. Y., and Mrs. Charles A. Stewart of Rouse's Point, also two grandchildren, Charles F. Stewart and Evelyn C. Stewart of Rouse's Point.

Dr. Fairbank was one of the old type of physician. Beginning his medical career in a sparsely settled district, his duties took him for miles around a neighborhood in the Adirondack wilderness when traveling was none of the best. No matter where the call came from or the hour at which it came he always responded and gave his best, no matter what the circumstances of the patient. Class and condition failed to exist the moment he crossed the threshold.

For twenty-one years Dr. Fairbank was a consulting physician at the St. Lawrence State Hospital. He was always foremost in any movement that was for the benefit and welfare of the village in which he lived and he was for nearly thirty years a member of the board of education. He was the first chairman of the Chazy Public Library, a position he held for years. From 1890 he was a director of the First National Bank of Champlain.

Dr. Fairbank was a lifelong Republican and in 1914 represented his county in Albany as a member of the Legislature. He was a member of some of the most important committees, including public health, labor and industries, conservation, and penal institutions.

He took great interest in the professional societies and was a member of the Clinton County Medical Society, the New York State Medical Association and of the medical board of the Champlain Valley Hospital. He stood high in the Masonic fraternity and was a member of the Northern Light Lodge, F. & A. M., of West Chazy, Adirondack Chapter, R. A. M., DeSoto Commandery, Knights Templar, of Plattsburgh, and Oriental Temple, Nobles of the Mystic Shrine.

1877

DR. MARCUS M. LOWN of Rhinebeck, is health officer of the Consolidated Health District of the village and town of Rhinebeck.

1881

DR. JAMES H. MITCHELL, SR., has been elected president and Dr. John A. Archibald (A.M.C., '88), secretary, of the Cohoes Hospital Medical and Surgical Staffs. Drs. John F. McGarrahan (A.M.C., '94), James H. Mitchell and John A. Archibald have been named representatives of the hospital staffs on the board of doctors. Drs. Harry B. Gillen (A.M.C., '09), M. J. Keough (A.M.C., '05), and John A. Archibald were named a

committee to consider the subject of having the hospital standardized in accordance with the plans of the American Medical Association.

1886

DR. JOSEPH S. PARENT of Galway, N. Y., is the health officer of both the town and village of Galway, Saratoga county, N. Y.

1887

DR. F. G. MULLER is practicing at Ravena and Rensselaerville.

1888

DR. FRANK A. WINSHIP of Eagle Mills, is the health officer of the town of Brunswick, Rensselaer county, N. Y.

DR. CHARLES B. CUNNINGHAM is in practice at Warrensburg, N. Y.

1890

DR. ROBERT S. LINDSAY, Old Forge, Herkimer county, N. Y., is the health officer of the village of Old Forge and also of the town of Webb.

DR. SETH A. MERENESS is in practice at Oneonta, N. Y.

1893

DR. C. J. ROBINSON, Northville, N. Y., was appointed health officer February 11, 1922, of the town of Benson, Hamilton county. Dr. Robinson is also the health officer of the Consolidated Health District of the village of Northville and the town of Northampton, Fulton county, N. Y.

1893

DR. CHARLES A. SHULTES is practicing at Preston Hollow, Albany county. Dr. Shultes is health officer of the town of Rensselaerville.

DR. W. EDWARD HENDRY is in practice at Willimantic, Conn.

1899

DR. WALTER A. LEONARD of Cambridge, N. Y., is health officer of the Consolidated Health District of the village of Cambridge and the town of White Creek.

DR. LEON G. OGDEN is in practice at Holley, Orleans county, N. Y.

DR. CLAYTON E. SHAW is practicing at Hoosick Falls, N. Y.

1900

DR. PETER MCPARTLON, 7 Park Place, Schenectady, N. Y., is the superintendent of the Schenectady County Tuberculosis Hospital (Glen Ridge Sanatorium). Dr. McPartlon has had charge of this institution since it was established a number of years ago.

1901

DR. LELAND O. WHITE is in practice at Sharon Springs. Dr. White is health officer of the village.

1902

DR. G. VAN VORIS WARNER, 76 East Front Street, Red Bank, N. J., was elected president of the Monmouth County (N. J.) Medical Society at the annual meeting in December. Dr. Warner is also vice-president of the Practitioners' Society of Eastern Monmouth and has been treasurer of the Monmouth County Mosquito Extermination Commission since its organization in 1915.

1904

DR. GEORGE D. WILDE of Fort Edward, N. Y., is health officer for the Consolidated Health District of the town and village of Fort Edward.

DR. DANIEL V. O'LEARY of 357 Delaware avenue, Albany, N. Y., was appointed, February 28, a District Physician, Bureau of Health of the City of Albany.

DR. WILLIAM E. GARLICK, Wappingers Falls, N. Y., is health officer of that village.

1908

DR. EARL W. FULLER writes that he has been appointed psychiatrist to the New York State Commission for Mental Defectives and not to the State Hospital Commission as erroneously stated in the January ANNALS.

1910

DR. JOHN F. SOUTHWELL and Miss Beulah A. Stafford were married Thursday, February 16, 1922, in St. Peter's Episcopal Church by the rector, the Rev. Charles C. Harriman. The attendants were Miss Dorothy Hausen and James Ronin. After a visit to Florida, Dr. and Mrs. Southwell will make their home in Albany.

1913

DR. WOODWARD SHAW, 50 Washington Street, Gloversville, N. Y., is superintendent of the Fulton County Tuberculosis Hospital (Summit View Sanitarium).

1914

DR. FRANK C. FURLONG, at the request of the editor of the alumni notes, has kindly consented to assist the latter for Poughkeepsie and vicinity for which aid the ANNALS is grateful.

1916

DR. F. J. LAWLER is in practice at Carthage, Jefferson county, N. Y.

DR. E. C. WATERBURY, Newburgh, N. Y., is acting superintendent of the Orange County Tuberculosis Hospital (O'Dell Memorial Sanitarium).

DR. HOWARD B. SWAN is practicing at Chestertown, Warren county, N. Y.

1917

DR. EDWARD T. DELEHANTY, 313 State Street, Albany, N. Y., has been appointed physician to the jail by Sheriff John Allen of Albany county.

1918

DR. CHARLES W. GREEN, 607 State Street, Schenectady, N. Y., has been appointed one of the physicians to the medical clinic at the Health Center by Dr. J. H. Collins, health officer.

DR. HUBERT F. CARROLL is located at Blue Mountain Lake, and is health officer of that town.

ALUMNI DAY—1922

At a meeting of the Executive Committee of the Alumni Association of the Albany Medical College held March 15, 1922, preparations were made for the annual Alumni reunion on June 12. It was decided to repeat the program of last year. After the trustees, faculty and graduating class return from the Commencement exercises in Schenectady in the early afternoon, the annual meeting of the Association will be held in the college amphitheater under the presidency of Dr. Walter H. Conley. The annual dinner will be held at 7:00 p.m., at the Albany Hospital, an arrangement that is justified by the great success of the entertainment given at that institution last year under the direction of Superintendent Rockefeller.

The vacancy in the office of Historian of the Association, made by the resignation of Dr. Bedell, was filled by the election of Dr. William Kirk, Jr., of the Class of 1899.

The president, Dr. Conley, and the corresponding secretary, Dr. Hawn, were authorized to issue at once detailed announcements to Alumni, and there is expectation of a large attendance.

ALBANY MEDICAL ANNALS

AN EFFECT OF X-RAYS ON INHERITANCE

*Read at the Meeting of the Interurban Surgical Society, held at the
Research Laboratory of the General Electric Company,
Schenectady, N. Y., November 26, 1921*

By JAMES W. MAVOR, A. M., PH. D.

Associate Professor of Zoology, Union College

There is available very exact and detailed knowledge concerning the methods of division of the germ cells and the different phases through which the primitive egg cells pass in becoming mature eggs. We have, therefore, in the case of the maturation of the egg an opportunity to investigate the effect of X-rays on a biological process.¹ Further, since the egg cells after fertilization give rise by processes of division and growth to a new individual, a means is provided for testing for slight and delayed effects. In our experiments we have investigated the effect of X-rays on the egg cells of a small fruit fly, *Drosophila melanogaster*. The results of these experiments show that X-rays may be made to modify the transmission of certain hereditary characters.

The understanding of these experiments demands a certain knowledge of the life-cycle of the fruit fly and of Mendelian inheritance.² Like other flies the fruit-fly hatches from a small egg as a larva. This larva feeds on the yeast which grows on fermenting bananas. After feeding for four or five days it crawls out of the banana and forms a pupa. In this pupa the larva metamorphoses into an adult fly which

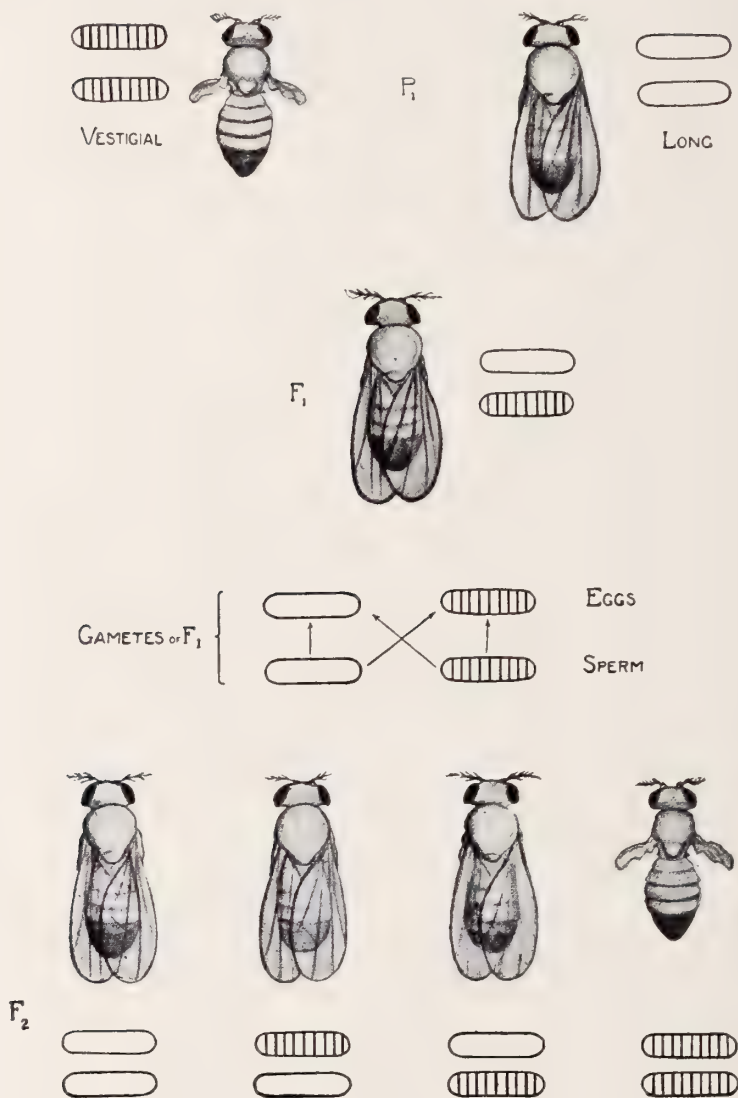


FIG. 1

Diagram illustrating a cross between a fruit-fly (*Drosophila melanogaster*) with normal wings (long wings) and a mutant fruit-fly with vestigial wings. The behavior of the chromosomes is also indicated⁵

emerges about four or five days after the pupa is formed. This fly is soon able to lay eggs. The complete cycle takes from nine to twelve or more days depending on the temperature. The flies are easily reared in bottles and a single pair placed in a bottle containing ripe banana will give from two to three or more hundred offspring in the first generation.

By a mutation is understood a character which appears suddenly and is inherited. By far the greater number of mutations whose inheritance has been investigated have been found to be inherited according to Mendel's law. As an example of this law may be taken the inheritance of any of the two hundred or more mutations which have been found in the fruit fly. Vestigial is a mutation in which the wings are very small. If a fly with vestigial wings is crossed with one with normal wings, the offspring in the first generation will all, without exception, possess normal wings, but if these flies be crossed inter se, a part of the offspring will be normal winged and a part will be vestigial winged in the proportion of three normal to one vestigial and there will be no intermediates (Fig. 1). Normal-wing is said to be dominant over vestigial-wing.

An explanation of this peculiar ratio may be found in a study of the processes of maturation and fertilization of the germ cells. When the nucleus of any cell divides there appear certain bodies called chromosomes. The number of these chromosomes in the cells of a given species is constant and when the nucleus divides each chromosome divides. There is an exception to this in the case of the maturation of the egg where at one stage a reduction division occurs during which the nucleus divides without the chromosomes dividing so that the mature egg contains only half the normal number of chromosomes (Fig. 2).³ Similarly when the sperm is formed there is a reduction division so that it also contains only half the normal number of chromosomes. When fertilization occurs and the sperm and egg combine, the normal number of chromosomes is restored. Further, a careful study of chromosomes has shown that those in a single cell are not all alike but can be arranged in pairs, from which it follows that in a ferti-

lized egg (and the cells of the adult which come from it) one chromosome of each pair was in the sperm and came from the father and one chromosome of each pair was in the egg and came from the mother.

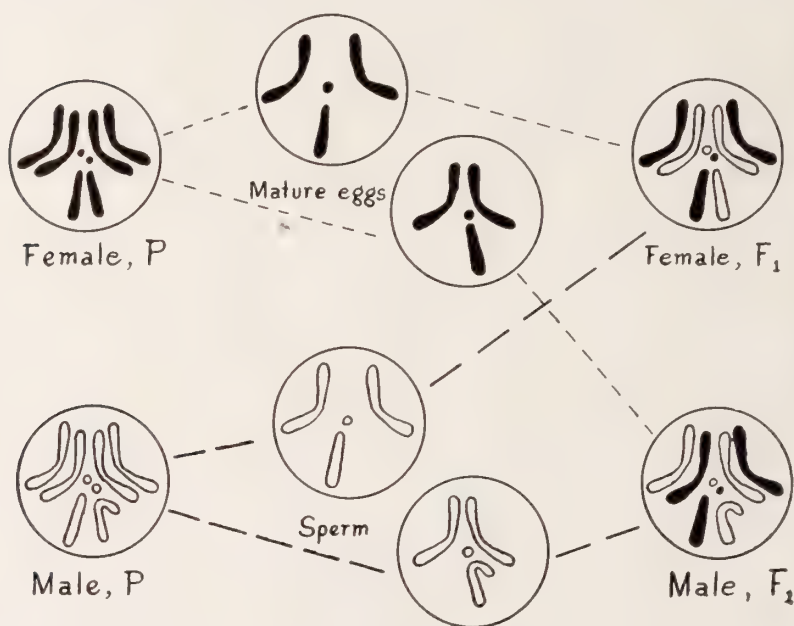


FIG. 2

Diagram illustrating the behavior of the chromosomes in the processes of maturation and fertilization in the fruit-fly (*Drosophila melanogaster*).

In the figures no attempt is made to show the processes of spermatogenesis but only the end result of these processes, *viz.*, the reduction of the number of chromosomes to half

Let us now see if the behavior of the character, vestigial-wing, in inheritance can be interpreted in terms of the chromosomes. Suppose that whatever it may be that determines that the resulting fly shall have normal wings, exists in each of a pair of chromosomes and that, in a race of normal winged flies which breeds true, this "determiner" exists in both the chromosomes of the pair. Similarly, suppose that in a race of flies with vestigial wings, which breeds true, the "determiner" for vestigial-wing is in both

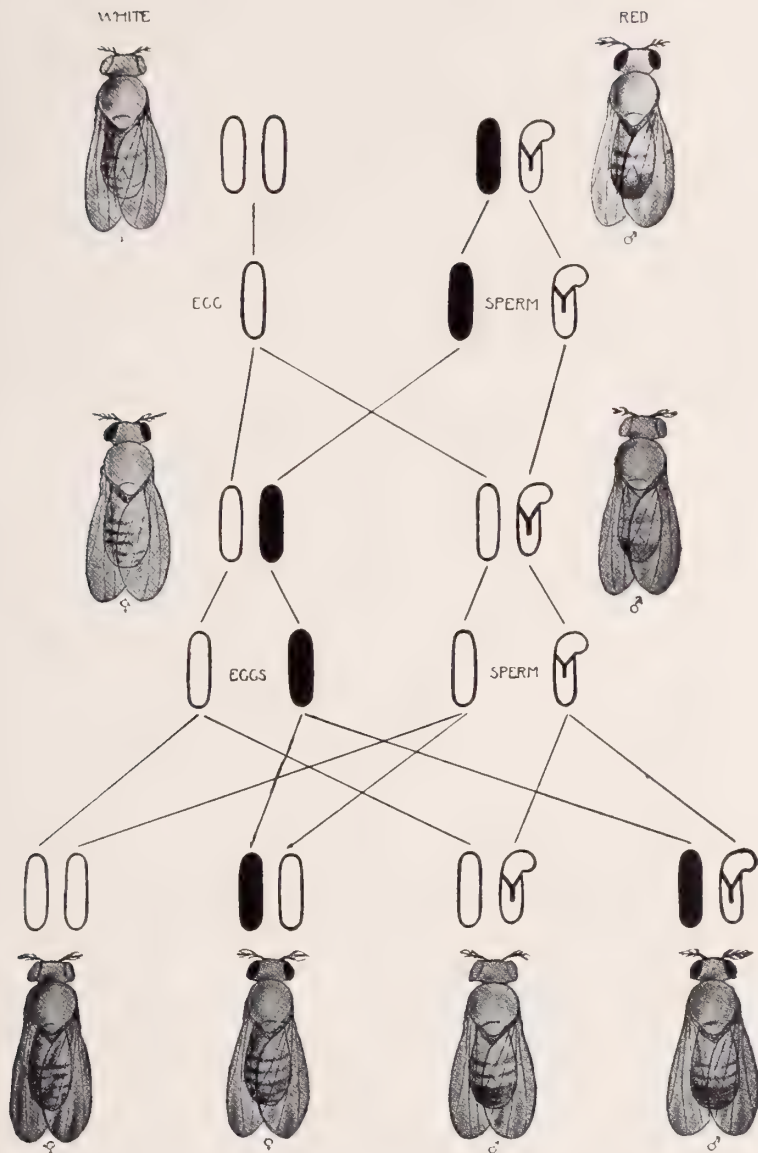


FIG. 3

Diagram illustrating a cross between a red-eyed male fruit-fly and a white-eyed female fruit-fly⁵

the chromosomes of a pair. When two of these flies are crossed the fertilized egg will have, in the case of any pair of chromosomes, one chromosome from the normal winged parent and one chromosome from the vestigial winged parent (Fig. 1). We know that the offspring in the first generation are all normal winged. Let us then suppose that the normal-wing determiner overpowers the vestigial-wing determiner when both are together. What will happen when the flies of this first generation are bred inter se? Both the sperm and the eggs will be of two kinds, one sperm will have a chromosome carrying the determiner for normal-wing, another will have a chromosome carrying the determiner for vestigial-wing and there will be the same two kinds of eggs. Either of the kinds of sperm has an equal chance of uniting with either of the kinds of eggs. For every four eggs which are fertilized we get one in which the determiner for normal-wing is in both chromosomes, one in which the determiner for vestigial-wing is in both chromosomes, and two in which one of the pair of chromosomes carries the determiner for normal-wing and one the determiner for vestigial-wing. Since the presence of the determiner for normal-wing in even one of the chromosomes makes the offspring have normal wings, we have for every four offspring in the second generation, three normal winged and one vestigial winged (Fig. 1). But these three normal winged flies are not all alike; one of them will be expected to breed true and two of them to breed like their parents of the first generation, that is, to give normal winged and vestigial winged flies in a three to one ratio. When they are bred this is found to be the case.

There is a certain class of mutations which behave differently in inheritance from the example I have chosen. They are called sex-linked. They are not, however, to be confused with sexual characters or sex-limited characters. If a white-eyed female is crossed with a normal red-eyed male, the sons are all white-eyed and the daughters are all red-eyed (Fig. 3). If, on the other hand, a red-eyed female is crossed with a white-eyed male, all the sons and daughters are red-eyed (Fig. 4)⁴. How can this be explained

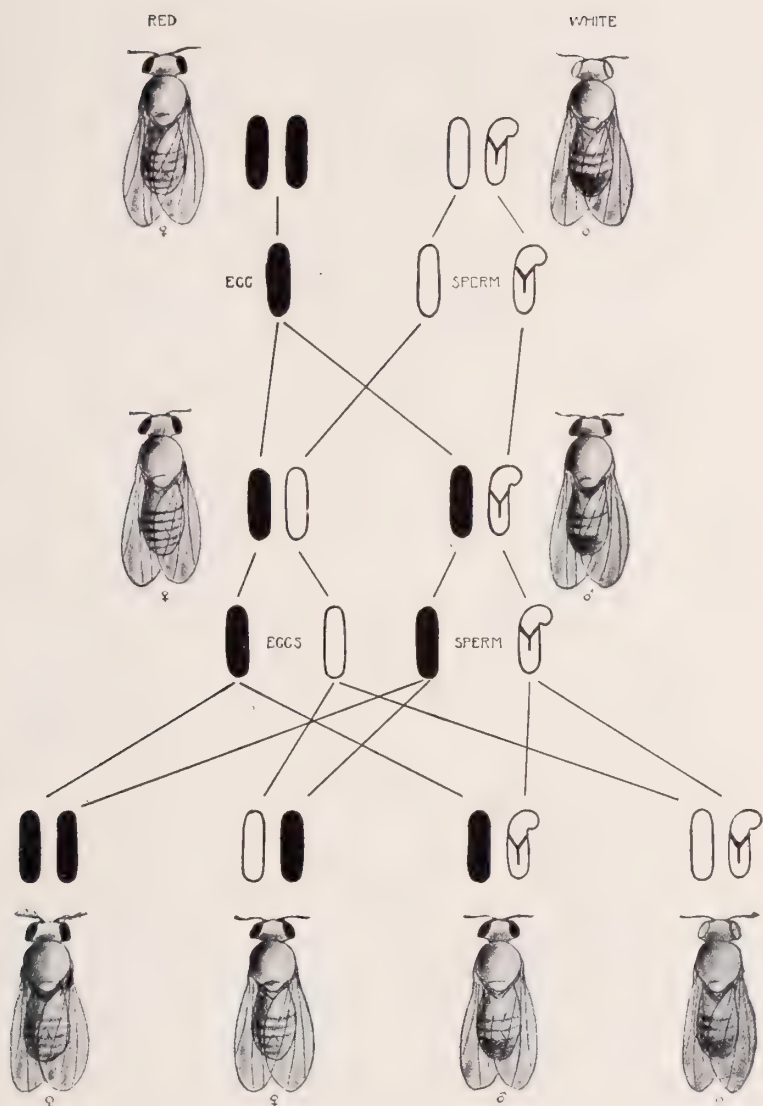


FIG. 4

Diagram illustrating a cross between a white-eyed male fruit-fly and a red-eyed female fruit-fly⁵

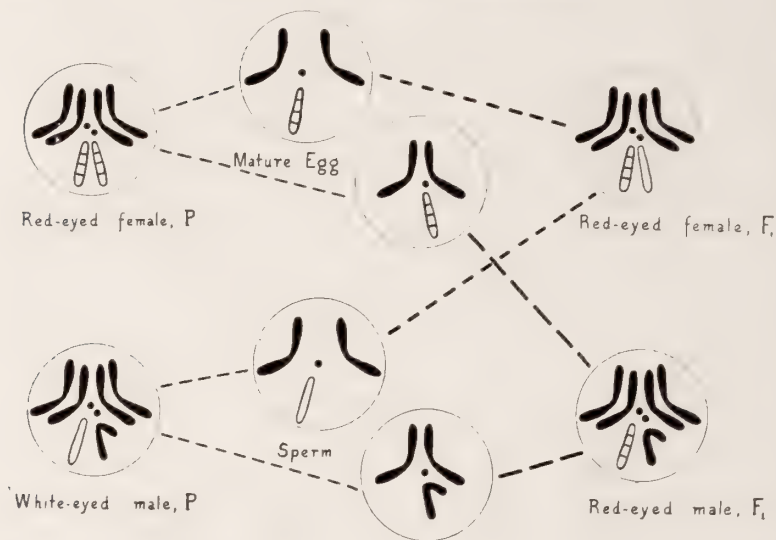


FIG. 5

Diagram illustrating the behavior of the chromosomes in a cross between a red-eyed female fruit-fly and white-eyed male fruit-fly

on the basis of determiners in the chromosomes? There is one pair of chromosomes which differ from the others. These are called the sex-chromosomes or X chromosomes. They form in the female a perfect pair, but in the male, one is of the type in the female pair (X), and the other has a hook (Y). (See Fig. 2.) It is easy to see that the sex of the fly depends on this pair of chromosomes; a cell with two X's being female and one with one X and a Y, male. When the female forms mature eggs they are alike and each egg has one X chromosome. When the male forms sperm they are of two kinds, half with one X chromosome and half with one Y chromosome. When an egg is fertilized by an X-bearing sperm it becomes a female and when it is fertilized by a Y-bearing sperm it becomes a male (Fig. 2). Let us suppose that the determiner for red-eye is in the X chromosome. A red-eyed male will have this determiner in one chromosome. A white-eyed female will have the determiner for white-eye

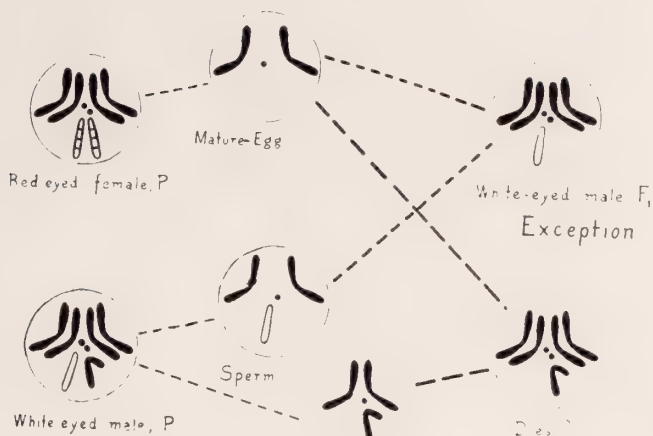


FIG. 6

Diagram illustrating the behavior of the chromosomes when the sex-chromosome is eliminated by X-rays

in both its X chromosomes (Fig. 7). The mature eggs of such a female have one X chromosome, bearing the white-eye determiner, and when they are fertilized by an X chromosome-bearing sperm from the red-eyed male, they will each receive a chromosome bearing the red-eye determiner. If red-eye is dominant such eggs will give rise to red-eyed flies, and because they will have two X chromosomes they will be females. When, on the other hand, such eggs are fertilized by Y chromosome-bearing sperm they will give rise to white-eyed flies because of the white-eye determiner in the egg and the absence of any red-eye determiner in the sperm and they will be males because they have one X chromosome and one Y chromosome. In the reciprocal cross, red-eyed female with white-eyed male (Fig. 5), both the male and the female offspring receive red-eye determiners from the female parent and the offspring are all red-eyed.

This then briefly is the mechanism of Mendelian inheritance. It is upon this mechanism that I have tested the effect of X-rays.

Preliminary experiments showed that the sterilization dose of X-rays was small compared with the lethal dose for

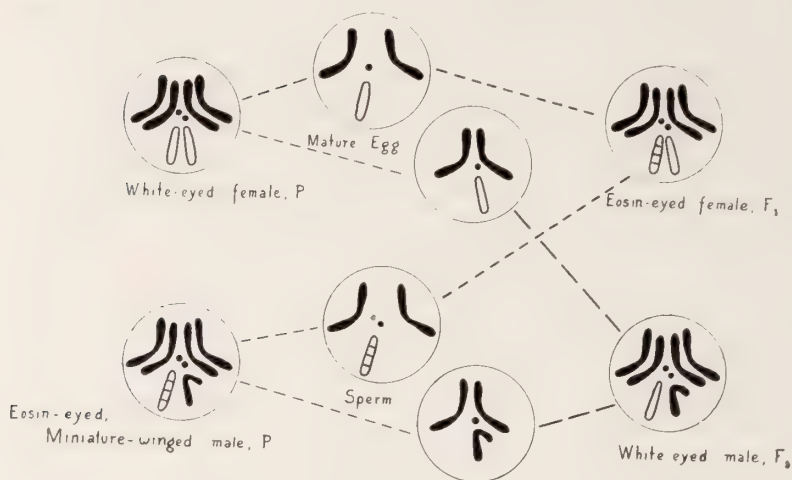


FIG. 7

Diagrams illustrating the behavior of the chromosomes in a cross between a white-eyed female fruit-fly and a red-eyed male fruit-fly

female flies, so that flies could be sterilized without apparently affecting them in any other way.

In all experiments an equal number of control matings were kept under the same conditions as those under which were kept the X-rayed pairs. In the first experiments virgin red-eyed, wild-type female flies were X-rayed. These females were obtained virgin by isolating pupae in test tubes. The females were X-rayed soon after emerging from the pupa cases with a dose just under the sterilization dose and immediately mated in rearing bottles with white-eyed males. The pairs of flies, both the control pairs and the pairs in which the females were X-rayed, were then transferred to new rearing bottles every six days. The offspring of the pairs in each bottle were counted every day. It will be remembered that in a regular cross the offspring of a red-eyed female by a white-eyed male are all red-eyed. The result in the case of the first bottles of one of the first four experiments was as follows: The seven control pairs produced 545 red-eyed males and 501 red-eyed females and no white-eyed flies.

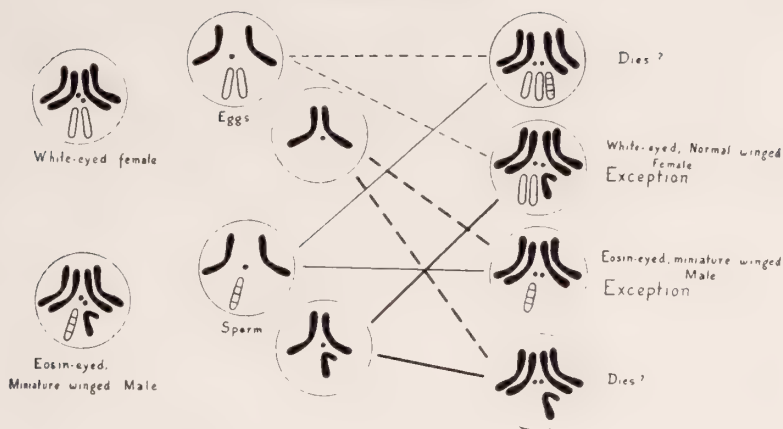


FIG. 8

Diagram illustrating the behavior of the chromosomes in non-disjunction, produced by X-rays

The six pairs in which the females were X-rayed produced eighty-one males and seventy-seven females; of the eighty-one males ten or twelve and three-tenths per cent were white-eyed and five out of the six pairs produced one or more white-eyed males; the seventy-seven females were all red-eyed. Further, it was noticed that the white-eyed flies were among those emerging on either the third or the eighth day on which flies emerged. This probably means that they came from eggs which were in one of two stages of the maturation process when the female parents were X-rayed. Two other similar experiments have been carried out with similar results. The totals of three experiments show that the nineteen control females produced 3367 red-eyed males and 3212 red-eyed females, while the fifteen X-rayed females produced 1227 red-eyed males, 1211 red-eyed females and twenty white-eyed males. Twelve out of these fifteen X-rayed females produced one or more white-eyed males. In one other experiment a white-eyed male occurred in one of the controls. This was probably due to non-disjunction.

The production of the white-eyed males by X-rays may be accounted for by assuming that the X chromosome was

eliminated by the X-rays. This explanation is shown in the diagram (Fig. 6). That the effect of X-rays is more probably to produce non-disjunction or the failure of the two X chromosomes to separate in the process of maturation so that some eggs get no X chromosomes while others get two X chromosomes, is shown by the next series of experiments.

Virgin white-eyed females were X-rayed and mated to eosin-eyed, miniature-winged males. Both eosin-eye and miniature-wing are sex linked and recessive, eosin-eye being, however, dominant to white-eye. It will be remembered that the regular offspring of such a cross are eosin-eyed females and white-eyed males. Seventeen control females produced 1726 regular males (white-eyed) and 1743 regular females (eosin-eyed) and one eosin-eyed miniature winged male; this latter was an exception due to non-disjunction occurring naturally. The thirteen X-rayed females produced 467 regular males (white-eyed) and 512 regular females (eosin-eyed) and in addition twelve exceptional males (eosin-eyed, miniature winged) and two exceptional females (white-eyed). Further, of these thirteen X-rayed females, four produced less than ten offspring and of the nine remaining X-rayed females which produced more than ten offspring each female produced one or more exceptional males. The two exceptional females were produced by different parents.

This second series of experiments shows that the effect of the X-rays is probably to produce non-disjunction, the exceptional males being produced by the fertilization of an egg with no X chromosome by an X chromosome-bearing sperm and the exceptional females by the fertilization of an egg with two X chromosomes by an Y chromosome bearing sperm (Fig. 8).

To sum up, it has been shown that X-rays have a specific effect on the dividing germ cell which leads to a specific modification of inheritance.

¹It should be said that little is known of the process of maturation of the egg of the fruit-fly used in these experiments. The process, however, has been found to be fundamentally similar throughout the animal and vegetable kingdoms.

²A discussion and a bibliography of the subject of Mendelism will be found in T. H. Morgan's "The Physical Basis of Heredity."

³In the egg these divisions take the form of the extrusion of polar bodies, so that only one of the cells resulting from the division of the primitive egg-cell or oocyte becomes a

mature egg. So far as we know there is an equal chance of any chromosome remaining in the egg or going into a polar body.

⁴There are rare exceptions to both these statements. White-eyed females when crossed to red-eyed males give one red-eyed male in about 1000 offspring and one white-eyed female in 10,000 offspring. This has been investigated by Bridges, *Genetics*, Vol. 1, and by Safir, *Genetics*, Vol. 5, and shown to be due to non-disjunction or a failure of the two X chromosomes to separate in the maturation of the egg.

⁵Figures 1, 3 and 4 are from "The Mechanism of Mendelian Heredity" by T. H. Morgan, A. H. Sturtevant, H. J. Muller and C. B. Bridges, Henry Holt & Co., 1915, pages 9, 19 and 17 respectively.

A CHAPTER ON SANITARY DUTIES, AS OBSERVED IN THE HISTORY OF ALBANY, FROM 1859 TO DECEMBER 31, 1921

By ALBERT VANDER VEER, M. D.

Albany, New York

(Continued from *April ANNALS*, p. 179)

1896. John Boyd Thacher elected Mayor. Board of Health remained the same. A more complete report regarding death rate for 1895 stated it to be 23.89, and law to be enforced, with penalty attached, for undertakers not filing a report of death certificates. No smallpox during year. Large increase of typhoid and measles. It was discovered that there was a large percentage of typhoid cases where the old style sewers were yet in use, there being 132 of the latter, or large drains, that had been constructed of wood, to sixty-three new ones built on modern principles.

There were 1,789 cases of measles during 1895. It was recommended that an extensive investigation of the tenement house district of the city be made, and, if necessary, secure legislation to put in proper sanitary condition.

Again the subject of a contagious hospital was considered and recommended. The new virus vaccine gave much satisfaction. Again the garbage question for 1895 was much discussed, and a committee, of which Mrs. Dewey was chairman, presented many excellent suggestions. New sewers most important to public health. It was believed that the old method of drainage had caused diphtheria. Greater facilities for increasing water supply recommended, but nothing to purify source. Examination showed that sewage was emptied in the river front six to ten miles above Albany, and that tidal action had its unfortunate influence. Filtration had been referred to but no definite action taken. An extensive report was presented by the inspectors.

February 7. Peter Hogan's plan for crematory presented.

March 6. Report of Sanitary Committee regarding water. Subject of typhoid fever discussed, and it was shown that

allowing twenty-five deaths a year from this disease, New York City had shown a better record. During the past twelve years Albany had had 624 cases. It was now believed that many of these cases resulted from, and were traced to, infected wells, but the public was most antagonistic to the closing of these. Some of the members of the Common Council stated their grandfathers had drunk from these wells and through generations of other ancestors no serious disease had developed. Still many complaints in regard to deficient drainage and privy vaults.

June 5. The death of Commissioner Dr. G. B. Schill was reported and proper action taken.

As an illustration of increased expense of office commodities, a bill was presented at this time for one quart of ink at sixty cents. The present wholesale price is \$1.25 per quart.

June 4. Mr. Garrie Benson proposed to care for a public bath, to accommodate two to three hundred daily, for a period of five years, for \$3,500 annually. Action was also taken at this meeting in regard to posting of notices in cars regarding spitting. Inspection also showed that in Livingston Avenue, one hundred houses were without proper drainage—surface drainage alone being used. Owners were recommended to use dirt closets. There were five cases of typhoid in one house.

July 3. Defective drainage at Geological Hall reported dangerous to employees and visitors.

August 7. Dr. MacFarlane presented an impressive report on the condition of the water from the Washington Avenue well, which was greatly polluted and dangerous for use. This well had been condemned in 1885, by the Board of Health, and ordered filled in. It was now ordered filled without delay.

October 7. John Relles presented a bill for eight dollars, for services in removing and filling in a vault at 269 Livingston Avenue.

November 6. Many cases of typhoid in first and second wards. The dump at Odell Street found insanitary, and containing much filthy garbage.

December 4. All physicians were requested to report cases of suspected Tb.

1897. John Boyd Thacher, Mayor; Board of Health continued the same, with the addition of Dr. Charles E. Davis, and Mr. Herman H. Russ; also Assistant Inspector of Plumbing, Drainage and Ventilation, Robert J. Egan.

January 8. Death rate for 1896, 21.45, which was less than 1895. An improvement in birth and death registration.

Deaths.....	2103
Births.....	1612
Marriages.....	625

Report still believed to be very deficient. Diphtheria continues in lower part of the city, creating much anxiety. This trouble originated in School No. 1, where, before known, a child entered with a slight attack. This school was ill ventilated and overcrowded.

Bacteriological laboratory yet continued in Medical College building by Dr. MacFarlane, but there is not sufficient room. The Bender Hygienic Laboratory now finished and all examinations in future for Board of Health to be conducted there. Dr. MacFarlane's services were greatly appreciated and his compensation had not been at all in proportion to the work rendered. The great need of a contagious hospital was again noted, where members of the family could come with patients and act as nurse under the supervision of a trained nurse or matron.

The work of the Board of Health had greatly increased.

Total inspection of contagious diseases.....	6,585
Plumbing, drainage and ventilation.....	5,289
Markets.....	1,792
Total.....	13,666

Action of the Albany County Medical Society for strict inspection of milk, to be put in hands of the Board of Health. Appropriation for inspection of cattle and milk not granted. Board of Health had no power over milk in city limits. Streets were not properly cleaned, and Board to use influence to have cleaning done for better health.

Employment of Minors. Board of Health to examine as to birth, age, weight, height, color of hair and eyes, facial marks and physical features. Certificate to be sent to State Factory Inspector. Also law calls for inspection of all mercantile places and factories. There were seventy-two violations of plumbing law, and all but one remedied.

January 8. J. V. L. Pruyn asked that the birth of his son be recorded in Board of Health Department, although born in a foreign country. There was no law to prevent such action.

February 5. Rules were adopted regarding the control of Tb. and its communication from one patient to another. Houses where deaths had occurred from this disease were carefully examined and disinfected.

Milkmen were required to take out licenses with the Board, to give number, name and address of peddler, or proprietor of creamery, or sale of milk in stores. No fee attached to license, but owners must care for dairies, cows, cans and stables. For violation of these rules Board may dictate penalty. A long report was presented regarding the rules for control of dairies.

February 11. Lawyer F. B. Delehanty spoke in opposition for milkmen.

A resolution passed authorizing Commissioners Dr. F. C. Curtis and Herman H. Russ to visit the Dixon Sanitary Crematory Company, at Trenton, N. J., for examination and report.

March 12. Reported that Committee on Garbage Disposal were negligent of their duty. Further discussion and report of that committee. Common Council yet reluctant to appropriate necessary funds for correction of this insanitary condition. No nearer solution of problem than two years ago. Albany has never had a systematic method of collecting garbage and now should have the latest and best. Reference was made to the resolutions passed by the Board of Health a year ago, seeking from the Board of Water Commission a source of pure water. Our water supply now dangerous. Recommended Lawrence, Mass., plan, and Board of Health heartily endorsed this report the Water Commission recently made to the Common Council. Com-

missioners Curtis, Russ and Balch appointed a committee to examine other garbage plants.

April 6. Dr. Curtis reported garbage committee visited Reduction Works, Barren Island, New York Harbor, then Trenton, N. J., and he, as chairman, went to Camden, N. J., also the Arnold Utilizing Process, Philadelphia, and Atlantic City Crematory, being accompanied by Dr. Vander Veer to the last named place.

April 16. The Committee on Garbage, through Dr. Curtis, chairman, presented an exhaustive report.

In the discussion on public baths, Mr. Benson would sell the bath on dock for \$1,700.

May 15. Further report on garbage.

1898. Thomas J. Van Alstyne elected Mayor; members of the Board of Health remained the same.

April 8. Board adopted Milton Smoke Tester for proving plumbing. Report from the Bender Laboratory for 1897 signed by Dr. Lartigau.

May 6. Committee from New York Central R. R. willing to comply with request of Board in regard to spitting in cars. Arbor Hill people building on ungraded streets and not petitioning for grading. A violation of the rules of the Board of Health in attempting to go on without main sewers. Report was received from Special Water Commission in reference to 1888 contract with New York Central R. R. Patroon's Creek abandoned as a source of pure water and made into a common sewer. This creek had been the only outlet for a large portion of the western part of the city, yet its waters had been collected for use in former Tivoli Lakes, and its outflow used summers for bathing, below Northern Boulevard. This unpleasant condition improved by diverting Patroon's Creek from Tivoli Lakes, letting storm water overflow to pass with others. This storm water would be comparatively clean. Report made by Horace Andrews, Engineer.

Many complaints in regard to privy vaults.

August 5. Many water examinations made by Bender Laboratory.

(To be continued)

MEDICINE

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INDUSTRIAL MEDICINE

THE ECONOMIC VALUE OF INDUSTRIAL MEDICINE TO INDUSTRY

By J. A. SMITH

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In giving consideration to the economic value of industrial medicine it may not be out of place to look back on the history of industry in this country and to trace some of the reasons which have proven the necessity for industrial medicine, and which have made it, not only highly desirable from a humanitarian standpoint, but also profitable alike to the employee and to the employer.

In the early days prior to the general introduction of steam for manufacturing power—the prospective factory owner was compelled to locate his plant on the banks of some stream which could readily be harnessed to furnish the necessary power, and as large streams were not plentiful, the growth of many small manufacturing plants in comparatively isolated locations resulted.

As power was the first consideration, and transportation being by animal-drawn vehicles, or by water, the location with reference to roads was not of such great importance. One need only drive a few hours in almost any part of the East to discover the remnants of manufacturing plants surrounded by the dwellings which formerly housed the operators, and in many instances—due to the march of progress—entirely abandoned, and are today but a reminder of the conditions under which the industries of this country started.

With the general introduction of steam for power and the coming of the railroads, there was a general turning toward the latter as a means of transportation, and the water-ways of the various states—while furnishing cheap transportation—were not sufficiently rapid in their operation to meet the changing conditions.

The upbuilding of large industrial centers where railroads were available was one of the next steps in industry, and resulted in the congregating of various lines of manufacture in comparatively small districts, such as the Textile District in the south-eastern corner and the Brass and Copper District in the south-western corner of New England, etc.

Prior to 1880 the principal manufacturers of articles made from metals were confined very largely to that portion of the country lying east of Ohio. These industries—with which I am most familiar—consisted of the manufacture of metal and woodworking machinery, fire arms, sewing machines, etc., and up to the late 80's these comprised the principal lines of manufacture, and which industries were operated on a very small scale.

With the introduction of the bicycle in the late 80's there came another opportunity for massed manufacture, this being followed by a very great growth in associated industries, and which was shortly followed by the very great growth of the automobile business and the other various lines which are contributory to it.

The electrical industry—which was in its infancy in the 80's—has become one of the very large manufacturing problems of this country, and today employs many thousands in its various branches of manufacture.

The growth of these large industries has brought about a very great change in the personnel of the manufacturing plants. In the early days when plants were small—usually operated by their owners in small communities employing native-born mechanics—the question of industrial relations was not particularly serious, as the owner in most instances was a relative or a friend of nearly all of the people he employed, and the relations were more or less on a family basis.

But with the growth of large industries, owned by stock companies and operated for the most part by officers selected by the board of directors for their business ability, rather than their intimate connection with the people in the locality in which the plant might be, the close personal contact which had previously existed was lost, and the relation of the employee in the shop with his fellow-employee in the management became one of the great problems of industry.

This lack of personal contact is particularly noticeable when it is considered that in the smaller plants of former times most of the operators were native-born, living in small communities and villages; in most instances serving a recognized apprenticeship at the trade in which they were employed, and in many cases several generations being employed in the same plant; whereas, under the new conditions a large number of people are recruited, not only from remote parts of this country, but from all parts of Europe.

The specialization which followed the formation of large industries prevented the acquisition of a general knowledge of the requirements of the employees other than the individual machine or operation on which they worked.

This specialization also prevented a proper knowledge of the necessary precautions to prevent accidental injury or infections; either as result of the injury, or contact with the material upon which the employee worked, and thereby necessitated greater precautions on the part of the supervisors.

The precautions necessary to prevent accidental injury finally resulted in the establishment of laws which require the safeguarding of machinery and processes to an extent which our grandfathers would have regarded as a little short of ridiculous, but which experience has shown are entirely justifiable in the light of present-day requirements.

In the attempt to replace the old family or fraternal relations which existed between the owner and those working for him in the small plant, many different schemes have been tried, and there is perhaps today no problem upon which the best brains in the industrial world are spending so much time or effort, as that of trying to maintain something like the spirit of co-operation which existed in the days when there was a close personal contact between the so-called "employer and employee."

Many of the efforts to establish the close personal contact of old have taken the form of co-operative societies, or associations in which the management and other employees have met in their hours of recreation, or during the hours of employment. As a result of these meetings and the discussions which they brought out, the selection of men as supervisors is being given more attention by the industrial world than was the case a few years ago.

Such matters as safeguarding, sanitation, accident prevention and industrial medicine were to a very large extent unthought of by the men in the days of the small plant. It may be that they were not as necessary in the times when the forces were composed of all-around skilled operators, who worked in surroundings which were perhaps more healthful than those in which many of the large plants of the country are today located. However, I believe that the great strides which have been made in the past few years in accident prevention and the introduction of industrial medicine are due as much to the intelligent co-operation of the management and other employees looking toward the common good, as to any outside agency.

I remember—going back about thirty years—that there were few such things as safeguards in most of the shops with which I was acquainted. I recall that when some one suggested that a gate be put at the elevator well to prevent people from falling into it, a great many of us thought that the man making the suggestion was crazy, as we could not conceive that any one would be fool enough to walk into an elevator well without looking to see where the elevator was located.

Such things as exposed gearing, set screws on revolving shafts, moving belts, and a multitude of other things which today would cause consternation, were regarded as entirely proper and natural things and part of the regular and accepted scenery which was associated with a man's every-day life and nothing was thought of them.

In those days an employee sustaining an accident in the shop was not usually commiserated with to any great extent unless such accident resulted in dismemberment or incapacitation, as nearly every one felt that if he had been attending to his work it would not have happened, and this attitude was not by any means confined to the supervisory force.

Such accidents as cuts, bruises, eye injuries, and other mishaps of minor character were regarded as every-day occurrences, and no one paid much attention to them. This feeling was particularly true with reference to the attitude of everyone toward contagious diseases, as it was nothing unusual for men to work in close contact with fellow-workmen who had contagious diseases in the home or who might have them themselves, and many diseases—the unfortunate victim of which would not today be permitted to work until cured—were regarded as an every-day occurrence, and very little, if any, attention was paid to them.

There was usually in each department an individual who acted in the capacity of a first-aid man—not always because of any fitness for the job, but because he liked it—and his instruments were not usually of a character which would meet with the approval of any medical or surgical society.

One of the most common accidents in the shop was that of being struck in the eye by flying particles of metal, or other foreign material. These particles usually were removed by the first-aid man, or one of the other fellow-employees of the patient, with the end of a match or lead pencil; or in extreme cases which required a surgical operation, with a jack knife—the victim sometimes protesting vigorously but the operation apparently in most cases being fairly successful.

In these times, with the growth of large industrial plants, the matter of industrial medicine is given a great deal more attention, but not, in my judgment, as much as the importance of the subject merits.

For example, take the introduction of a physical examination of prospective employees—this was objected to by many people who honestly believed that it was an attempt on the part of some employers to provide a reasonable excuse for not hiring some persons who might be physically all right, but who were not regarded as otherwise desirable. Such men held that a man's health was his own affair, and if he was satisfied it was no business of any one else. In certain localities medical associations also have objected to the Industrial Physician—probably owing to the fact that the fees of the family doctor would be reduced as a result of the Plant Doctor's work.

Such entrance examinations can be made of very great value to those taking it, as many times persons are hereby informed of conditions of which they were previously entirely unaware; such as defective eyesight, or other conditions which can be corrected, but which if they were not examined would have in all probability known nothing about them until they reached a dangerous or chronic stage.

Such examination also enables the employment department of large plants to place employees on work suited to their physical limitations, and frequently results in their being placed where otherwise they would not be employed.

The possibilities in the way of protecting present employees of a plant against the introduction of contagious diseases by new employees are in themselves worth more than such services could possibly cost, and the

entrance examination is perhaps one of the least important functions of a plant medical department. Such an organization—under the direction of a competent man—can be made one of the most important of all of the plant's activities, as it must be obvious to anyone that it is impossible for an employee to do his best unless he is in the best possible physical condition.

Furthermore, under both present and future conditions it will be essential that manufacture of every description be carried on with an idea of obtaining the highest possible production, and in order to accomplish this, it will be necessary not only that the buildings and equipment be kept in the best possible conditions for operation, but it is equally certain that to be successful, a manufacturer must be insured by as nearly continuous operation as can be maintained. Therefore, if continuous operation is to be maintained it will be necessary that employees be in good physical condition when they are engaged, and that the surroundings of the plant be made as safe and as healthful as is possible. Also that such accidents or illness as unavoidably occur must be treated promptly and skillfully, so that the period of incapacitation may be shortened as much as possible.

Good physical condition is not only a prime necessity from the employee's standpoint, as he will thereby be enabled to make better provision for himself and those depending upon him, but it will also insure to the manufacturer a constant flow of manufactured articles. This in turn will contribute to the prosperity of the business, and thereby benefit not only the stockholders and the management, but all other employees who depend upon industry for their livelihood.

I will not attempt to go into the matter of figures as to the savings which can be effected, as this would require more time than is at our disposal, but there is no question that the value of industrial medicine from a financial standpoint is sufficiently large to warrant an extension of the work to plants which do not have it.

I further believe that even in the case of small organizations where it is felt that the services of a competent industrial physician are beyond their means, something could be done on a co-operative basis by several small concerns getting together and affording their employees the benefits which are certain to accrue as a result of having available the services of an industrial physician.

It has been found by experience that the work done by the industrial physician within the plant proper does not by any means constitute the extent of his services to the employees and their dependents, as very frequently he is able to point out to employees the necessity of medical attention by referring them to their family physician for the continuation of such attention, with the result that they are in a better physical condition to successfully prosecute the work in which they are engaged.

Of course, it is obvious that much depends upon the man in charge of the industrial medical department, as his duties are very numerous and his responsibility is great. He is responsible not only to see that the

injured are treated skillfully and expeditiously, but to see that their injuries are taken care of during the period of incapacitation. It is also his duty to see that the injured are returned to work as soon as it is proper for them to do so, and to be careful that they do not return too soon.

The man in charge of the industrial medical department also becomes the responsory for all kind of confidences, complaints, suggestions, and numerous other matters which are not in any way associated with injuries, but which have a very large bearing upon an employee's relation to the employer. In fact it is doubtful whether any individual connected with the management of a plant has as great an opportunity to do good as a well qualified, tactful industrial physician.

THE ACTINIC RAY

SKIN ANATOMY AND EFFECT OF RAY

ARTICLE II

By C. B. WITTER, M. D.

Research Laboratory, General Electric Company
Schenectady, N. Y.

The whole human body arises from a single cell, and in this single cell organism, where life exists in its lowest form, the cell wall, being immersed in stimuli of relatively uncomplicated character, requires little differentiation. As the single cell organism evolves into multiple and myriad cells and in so evolving emerges from its bath of elementary stimuli, the simple cell wall becomes modified to a layer of protective skin for shielding the organism against physical destruction.

The human skin arises from two blastodermic layers, the epidermis from the epiblastic and the corium from the mesoblastic strata. These two skin layers differ widely in their cellular structure, and more widely do they differ in the physiological function that they perform. The corium is essentially fibrous and supports the blood vessels that nourish the overlying epidermis. The epidermis is entirely cellular and maintains a dual function, that of a perpetual metamorphosis whereby the cells of its deeper layers undergo gradual modification and arise to the upper layers at such time as they are physiologically capable of affording the greatest protection against outward stimuli, more especially the actinic energy of the sun. During this evolutionary metamorphosis, the second function of the epidermis is that of maintaining its individuality at a histological structure. Due to the theory of ninetism the epidermis responds to helioactinism directly in proportion to the intensity of the ultra-violet energy to which it is exposed.

Five layers compose the epidermis. The innermost layer is called stratum germinativum, which constitutes the basal layer of the epidermis and consists of a single row of columnar cells arranged practically perpendicular to an imaginary line separating the corium from the epidermis. Their whole function is that of reproduction, from which the cells of this

layer have received the name of "Mother cells of the epidermis." From these cells are derived the "Daughter cells," whose function is that of differentiation, they being gradually pushed towards the surface by the formation of new cells beneath them. In their migration towards the surface these cells are gradually changed until they become horn cells.

Next comes the stratum malpighii, or prickle cell layer, which holds a varying number of polygonal cells and these cells flatten as they extend toward the surface of the skin. Communicating filaments extend from the adjoining walls of these cells, from which characteristic the prickle cell is named. These protoplasmic fibrils are strongly resistant structures, being not affected by boiling water and weak acids. Between these cells are the lymphatic spaces in which the distribution of the fibres of the interepithelial nerve plexus is found.

Next comes the stratum granulosum, consisting of two or three rows of flattened granular cells, the granules of which are numerous and variable in size and are composed of a soft solid called keratohyalin, a modified protoplasm insoluble in many solvents.

Next comes the stratum lucidum, a semitransparent appearing substance showing one or two rows of swollen and irregular cells, the nuclei of which are greatly shrunken and often replaced by detritus. In the cells of this layer the keratohyalin has further changed into an oily substance called eleidin, present in and between the cells.

The outermost layer is the stratum corneum, thickest on the palms and soles and thinnest on the face. It is composed of horn cells very much flattened and dessicated at the surface. In these cells the eleidin is found to be replaced by a waxy material, and the cell wall is composed of resistant keratin.

The corium, a dense fibrous layer underneath the epidermis, supports and protects blood vessels, nerves, glands, and hair follicles.

The skin performs six important physiological functions, namely: secretory, respiratory, absorptive, thermic, sensory, and protective.

The skin secretes sweat and excretes sebum. It represents the fluid residue derived from the blood that had nourished the cells of the skin. The secretion is influenced by two sets of nerves and may be stimulated by certain drugs, emotional states, heat or actinism. Sebum is a lubricant controlled by blood supply and temperature. The amount of sebum distributed over the skin area varies proportionally to the pigment of the individual, darker skins presenting more sebum than fair ones.

The respiratory function of the skin consists of the elimination of water vapor and carbonic acid gas. The metabolic integrity of the skin layers must be untouched if maximum respiratory activity is expected.

When the skin is invaded by an infectious organism, or when its histologic unity is destroyed either through hypertrophy or atrophy, two important conditions arise. The first is the lesion resulting from the particular type of pathology invading the site. This is recognized as a disease of the skin, which may affect the glands, or may manifest as an

inflammation, a hemorrhage, a hypertrophy, an atrophy, a new growth, a neurosis, or a parasitic affection.

Direct sunlight is an extremely powerful germicide for all pathogenic bacteria, and on analysis it has been found that the action is dependent practically entirely upon the activity of the ultra-violet spectral rays. Ultra-violet bactericidal action is direct and indirect. In the treatment of skin diseases, wherever the invading organism of a skin inflammation rests under the surface, the buried bacteria are affected through the indirect activities of the ray. For each organism, and depending upon the site in which the organism is located, the action is somewhat different, but it may be generally said that the indirect germicidal activity is effected through changes in the media, which changes are best designated as immunologic.

The indirect germicidal effect of ultra-violet rays are many times more powerful than the direct effects. Immediately following a general ultra-violet radiation of the entire body, the white cells diminish in number and after some hours begin to increase so that they exceed the original leucocytic count before insulation. There is therefore produced at first a leukopenia, and later a leukocytosis. It is also noted that the percentage of mature and immature cells is increased over the percentage of spent cells, therefore the systemic effect of the ray results in the actual production of additional phagocytes. The hematopoietic system also responds to the influence of the rays, for changes occur in the number of red blood cells, and in the hemoglobin content, both of which are increased.

PROGRAM OF THE SEVENTH ANNUAL MEETING OF THE AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS

St. Louis, Mo., May 22nd and 23rd, 1922.

Washington University Medical School

Members will reach their hotels by taking north bound Eighteenth Street car line at east side of the Union Station—transfers issued to all lines.

For Jefferson Hotel, Missouri Athletic Association, Marquette Hotel and Hotel Statler transfer to east bound Page Avenue car.

For La Salle, Laclede, Maryland and other downtown hotels transfer to east bound Olive Street car.

To reach Washington University or Barnes Hospital from downtown, take Olive Street or Page Avenue car west, transfer to Taylor Avenue line at Taylor Avenue for the Medical School and Hospital.

The Department of Occupational Therapy and Orthopedic Shop of Barnes Hospital is in daily operation and will be available for inspection at a convenient hour—to be announced.

The Board of Directors will meet at the Hotel Statler, at eight o'clock, Sunday evening, May 21

Monday—9:30 a.m.

Washington University Medical School; business meeting; remarks by the president; reports of committees as follows:

1. Committee to consider union with some section of the A. M. A. Dr. Geier, chairman; Dr. Ford and Dr. Sawyer.
2. Committee to report upon the relationship existing between the industrial physician and extra-industrial health agencies. Dr. Wright, chairman; Dr. Clark and Dr. Quinby.
3. Committee for the co-ordination and standardization of first-aid methods to be applied in industry. Dr. Shoudy, chairman; Dr. Colcord and Dr. Rector.
4. Committee on the standardization of records and a cost accounting system for medical service in industry. Dr. Ford and Dr. Rector.
5. Committee to evolve a practical scheme for supplying health service to small plants. Dr. Schram, chairman; Dr. Selby and Dr. Shipley.
6. Report as to number of industrial hygiene departments in federal, state and municipal health departments. Dr. Sawyer.
7. Report of committee to consider co-operation between the Association and the Conference Board of Physicians in Industry. Dr. Watson, chairman, and Dr. Geier.

Report of secretary-treasurer, etc.

Monday—12:30 p.m.

Hotel Statler; luncheon.

1. Comments. J. S. Newell, chairman, Supt. National Lead Co., Granite City, Ill.
2. The Physician in Industry—Defined. C. E. Ford, M. D., New York.
3. Scientific Medicine and Surgery. Geo. W. Crile, M. D., Professor of Surgery, Western Reserve Medical School, Cleveland, Ohio.
4. The Value of the Public Health. Allen J. McLaughlin, M. D., President American Public Health Association, Washington, D. C.
5. Human Conservation in Industry by Medical Supervision. L. G. Harney, M. D., East St. Louis, Ill.

Monday—2:30 p.m.

Washington University Medical School:

1. The Workingman's Diet. John R. Murlin, M. D., Professor Physiology and Director Department of Vital Economics, University of Rochester, Rochester, N. Y.
2. Sickness Records in Prevention Work. Edgar Sydenstricker, United States Public Health Service, Washington, D. C.
3. Mercantile Hygiene. Arthur B. Emmons, 2nd., M. D., Director Harvard Mercantile Health Work, Boston, Mass. Discussion by Dr. Harold W. Stevens, Jordan Marsh Co., Boston, Mass.
4. Occupational Diseases and the Physician in Industry. A. G. Cranch, M. D., National Carbon Co., Cleveland, Ohio.

5. Studies of Undernourishment in Industry. Wm. Hall Bunn, M. D., Youngstown, Ohio. Discussion by R. W. Elliot, M. D., National Lamp Works, Cleveland, Ohio.

6. Importance of Periodic Physical Examinations -with Reports on 3000 Examinations. Wm. B. Fisk, M. D., Chief Surgeon, International Harvester Co., Chicago, Ill. Discussion by R. S. Quinby, M. D., Hood Rubber Co., Watertown, Mass.

Tuesday—9:30 a.m.

Washington University Medical School:

1. The Practical Application of the Activities of the Public Health Service to the Problems Affecting Industry and Industrial Physicians. L. R. Thompson, M. D., Surgeon in Charge, Division Industrial Hygiene, United States Public Health Service, Washington, D. C.

2. Surgical Reconstruction -illustrated. R. Tunstall Taylor, M. D., Professor of Orthopedics, Johns Hopkins Medical School, Baltimore, Md.

3. The Heart in Industry. Paul D. White, M. D., Chief of the Medical Out-patient Departments and in Charge of the Cardiac Clinic, Massachusetts General Hospital, Boston, Mass. Discussion by Arthur E. Strauss, M. D., St. Louis, Mo.

4. The Relation of Inguinal Hernia to the Workmen's Compensation. J. M. Wainwright, M. D., Chief Surgeon, Glen Alden Coal Co., Scranton, Pa. Discussion by Dr. Loyal A. Shoudy, Bethlehem Steel Co., Bethlehem, Pa.

5. Unusual Fractions and Dislocations with End Results -illustrated. C. W. Hopkins, M. D., Chief Surgeon, Chicago & Northwestern Ry., Chicago, Ill. Discussion by Dr. Geo. D. Cale, St. Lukes Hospital, St. Louis, Mo.

6. Atmosphere, Efficiency and Civilization. Ellsworth Huntington, Department Geological Sciences, Yale University, New Haven, Conn.

7. What Should the Industrial Physician Know About Nervous and Mental Diseases? Frankwood E. Williams, M.D., National Committee for Mental Hygiene, New York.

Cafeteria lunch—served in the restaurant of the Medical School.

Tuesday—2:00 p.m.

Washington University Medical School:

1. Election of officers.

2. The Relation of Syphilis and Gonorrhea to Industry. Wm F. Snow, M. D., General Director, American Social Hygiene Association, New York. Discussion by Dr. A. N. Thompson, New York.

3. Industrial Groupings and Tuberculosis. Wm. Charles White, M. D., Director, Tuberculosis League, Pittsburgh, Pa.

4. The Industrial Phase of the Tuberculosis Problem. Frank A. Craig, M.D., Physician in Charge of Industrial Work, Henry Phipps Institute, Philadelphia, Pa.

5. Industrial Results of Granite Dust Inhalation, D. C. Jarvis, M. D., Barre, Vt.

SURGERY

Edited by ARTHUR W. ELTING, M. D.

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NOTES OF THE MEETING OF THE INTERURBAN SURGICAL SOCIETY AT THE STATE LABORATORY

*Brief Outline of the Scope of the Laboratory Work, History of Its Development and Plan
of Its Development*

By AUGUSTUS B. WADSWORTH, M.D.

The State Department of Health was reorganized in 1913 as a result of the enactment of the new Public Health Law which provided for a Commissioner, a Deputy Commissioner, a Public Health Council and Divisions. The State Laboratory had been established in 1902 for the production of tetanus and diphtheria antitoxins and in 1906 the work was extended to include the diagnostic examination of specimens for evidence of diphtheria, tuberculosis, and typhoid fever, and the chemical and bacteriological examination of water samples. In 1914 every branch of the work was revised and developed and there has been a rapid expansion since that year. The number of diagnostic examinations performed has increased from 13,000 in 1913 to 200,000 in 1920 and the appropriations from \$40,000 to \$400,000 in the same period.

Until July, 1919, the laboratory was housed in a brick stable and an adjoining two-story frame dwelling on Yates Street in Albany, where conditions were extremely bad. The growth of the work has continued to be so great that the present building is already overcrowded.

The laboratory is organized into seven groups: the vaccine, serum and antitoxin laboratories; the diagnostic laboratories, subdivided into groups for bacterial and for serological examinations; the water and analytical chemical laboratories; the research group; and the three general service groups, the department for the preparation and sterilization of glassware and media, the office and the library.

The Public Health Law and the regulations of the Sanitary Code provide that certain examinations shall be performed in laboratories approved by the Commissioner of Health. It has therefore devolved upon the State Laboratory to set minimum standards for this approval and to test the work of the local laboratories seeking it. The number of approved laboratories scattered throughout the state is now over ninety. They have formed an independent organization, the New York State Association of Public Health Laboratories, whose meetings twice a year afford excellent opportunity for discussion of technical problems

The preparation and revision of standard methods for every procedure, which has been going on ever since the reorganization of the laboratory, has stimulated the spirit of research among the staff. All of this research is of a practical nature, consisting in the development and testing of new methods, the investigation of public health problems and the study of infection and immunity.

Demonstration 1. The Inhibition of Phagocytosis by Bacterial Cultures.—MISS HOPPE.

Our study was undertaken in the hope not only of learning more of the action of the known bacterial poisons, but also of finding some simple cells or tissues sensitive to those bacterial substances which apparently are formed by certain species of pathogenic bacteria, giving rise to the development of immunity, but which have never been detected or accurately measured.

Well-washed dog leucocytes were used in the tests. They were exposed to the action of various toxins and culture broths and the effect of the exposure measured by their phagocytic activity when brought in contact with sensitized staphylococci. In every case the phagocytic power of the leucocytes was inhibited.

The depressing substance itself was not affected by the duration of exposure by the presence of antisera, by exposure to temperatures up to 120 deg. C. for one hour nor by exposure to diffuse daylight for fourteen days and to direct sunlight for three and one half hours. It was destroyed by digestion with pepsin and with trypsin. The depressing substance has been isolated by adsorbing it to leucocytes and washing it from them with salt solution. The salt solution then depressed phagocytosis while the leucocytes showed normal phagocytic ability.

WADSWORTH, A. and HOPPE, E. N.: The Action of Bacterial Culture Products on Phagocytosis. *Journal of Immunology*, 1921, 6: 399.

Demonstration 2. The Complement Fixation Test for Tuberculosis.—MR. MALTANER AND MISS JOHNSTON.

In our work on complement fixation in tuberculosis, we have studied the different antigens which we have prepared from the tubercle bacillus. No qualitative differences between the antigenic preparations were detected by the use of the ordinary complement fixation technique. On account of the necessity for taking into consideration the qualitative and quantitative relationships between the various reagents used in the test, the hydrogen ion concentration and the use of buffered solutions, we have developed a new technique which consists of a titration of the activity of the serum to be tested using varying quantities of both serum and complement. Our results have been encouraging, demonstrating important differences among the antigens. We are now studying experimental infection in calves and tuberculosis in man.

WADSWORTH, A. and MALTANER, F.: The Purification and Concentration of Antigens for Complement Fixation by Methods of Dialysis, Absorption and Extraction. *Journal of Experimental Medicine*, 1921, 33: 119.

ELECTRONS AND CRYSTAL STRUCTURES

Two things in which we have always been interested are X-rays and crystalline structure of metals; and this interest has been greatly stimulated by recent developments in physics.

The Research Laboratory has passed through several epochs within the last few years. One such epoch began when Coolidge discovered how to make ductile tungsten. The result was intense research on lamps, which claimed a very large part of our time for several years. This epoch has passed its maximum, or one of its maxima, but its soul is still marching on, as I shall show.

A second epoch began when Langmuir discovered that large currents can flow through vacuum from an incandescent tungsten filament to a cold plate, provided sufficient voltage is impressed to drag them across. The result of this discovery was an epidemic of activity in vacuum tube devices—X-ray tubes, kenotrons, amplifiers, radio telephones, and in the near future generators and converters of electric power. This epoch is still in its infancy. It is to be noted that this epoch could not come until the first, the ductile tungsten epoch, was well under way.

A third epoch began with the discovery, by Laue in Germany, and Moseley and the Braggs in England, that X-rays are waves like ordinary light, and that their wave-lengths are about the same as the distances between atoms in solid bodies. This may be called the highbrow epoch, since its useful results, though perhaps destined to be far more important than those of the two preceding epochs, are still mostly in the future. It is this epoch that I am going to talk about.

The highbrow epoch, or atomic structure epoch, as it may be called to distinguish it from other highbrow epochs, although it is the youngest and is still in its infancy, has already claimed a considerable amount of our work. Following Moseley, we have studied the quality of the X-rays given by the Coolidge tube under varying conditions. Following the Braggs, we have studied the crystal structures of many substances, and have devised new and simpler methods of carrying on these studies.

Finally, and most important, using all this new knowledge about atoms, Langmuir has reinterpreted the vast collection of chemical facts bequeathed to us by the last century, and has shown that all these complicated laws and reactions depend in a simple manner on one single set of facts, the arrangement of electrons in the outer shells of the atoms. A new, simplified, and broadened chemistry is thus made possible.

I will now drop chronology and give you the practical results—or impractical if you prefer—of these studies.

One of the most illuminating results has been the discovery of the nature of light. There is more light in the world than we ever dreamed of, but our eyes can see only a small portion of it. Light, that is waves of electric force, can be had in all sizes, or wave-lengths, from one billionth of an inch to one thousand miles. Perhaps we should exclude the larger sizes, from one inch to one thousand miles, which are the wireless waves

so popular at the present time. All the rest may be classed as short wave-lengths, and are generally measured in terms of a very small unit called the Ångström unit, which is one one-hundred-millionth of a centimeter. This unit, which has long been in use, is especially suited to the measurement of X-ray and atomic distances, since the average wave-length of X-rays and the average dimensions of atoms are both approximately one Ångström. The diameter of the smallest known atom, the hydrogen atom, is almost exactly one Ångström.

The only light that the eye can see is that whose wave-lengths lie between four thousand and eight thousand Ångströms, *i.e.*, light of which a single wave, as it strikes the eye, extends over four thousand to eight thousand atoms in the eye. A Mazda lamp gives light of all wave-lengths from three thousand to one million Ångströms, and intense sparks give all wave-lengths from one hundred to one million Ångströms. Most of this the eye can't see, but a photographic plate can. So can air, which is ozonized by short wave-lengths, and skin, which is warmed by the long wave-lengths and sunburned by the short, or ultra-violet ones.

The shortest light wave that has ever been produced in air is one hundred Ångströms roughly one hundred atoms long. To produce shorter waves vacuum is needed. The reason for this, as I shall explain presently, is to allow the electrons that produce the light to travel farther without hitting anything and so get up higher speed. The higher the speed of the electron, the shorter the wave-length of the light produced. If the vacuum is good enough, as in the Coolidge tubes, the electrons can be given any speed desired by using sufficiently high voltage. Thus when operating at ten thousand volts the tube produces light, or X-rays, between one and ten Ångströms; at one hundred thousand volts, waves as short as one tenth Ångström are produced, *i.e.*, only one tenth the diameter of the smallest atom; and at three million volts we may expect to obtain X-rays as short as one three-hundredth Ångström, which will be practically identical with the most penetrating gamma rays of radium. All these X-rays are invisible to eyes, but can be seen by photographic plates, and by gases, which are ionized by them, *i.e.*, the atoms of the gases are broken up into their positive and negative constituents, thus making the gas electrically conducting.

As a result of the study of X-rays we have a clearer picture of the *mechanism* of the production of light. All light, from wireless to X-rays, is produced by the accelerated motion of electrons, *i.e.*, by their starting or stopping, or oscillation back and forth. A smooth body moving through water at a uniform speed causes very little disturbance; but a sudden change in its motion, or a to and fro movement, causes violent waves. Similarly an electron moving with uniform speed, as in a vacuum tube, produces no light; but when it surges back and forth in a wire it produces long radio waves; when it bumps against other electrons or atoms in solid bodies it produces light, either visible or infra-red, according to the violence of bumping, which we call temperature; when, traveling at the enormous speed of one hundred thousand miles per second in an X-ray

tube, it plunges into the anode, it produces penetrating X waves one tenth of an atom long; and when it is suddenly expelled from a radium atom at nine tenths the velocity of light, by an explosion of an atom of radium C, it produces the very penetrating gamma rays of radium C, the shortest and most penetrating light waves known. The shortness of these gamma rays of radium C is due to the violence of the explosion, and the resulting high velocity of expulsion of the electron, the highest electron velocity known. There are other gamma rays, due to less violent explosions, whose wave-lengths are about the same as those of X-rays now in common use.

In all these cases it is the *change of motion* of electrons that produces the light. In the case of wireless waves it is the rhythmic surging back and forth of a large number of electrons; in the case of the line spectra of gases or X-rays it is the free oscillation of single electrons; in the case of the continuous spectra of incandescent solids and of X-rays it is the sudden stopping of the electron; and in the case of gamma rays it is the sudden starting of the electron.

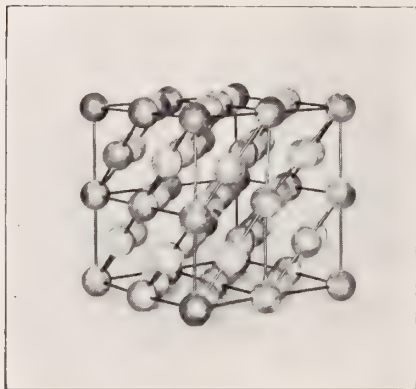
Since the wave-length of X-rays is about the same as the diameter of atoms, it is easy to understand, now that we know it to be true, that X-rays should be reflected by a group of atoms in a row or in a plane, in the same way that sound is reflected by a picket fence, short wireless waves by a grating of parallel wires, and ordinary light by a surface of glass or metal scratched with fine parallel lines. All these reflections differ from reflection by a smooth surface in one important respect. The angle at which reflection occurs depends on the distance between the lines, wires, pickets and planes of atoms respectively. By observing that X-rays are thus reflected from crystals, and that this angle is constant and definite for a given crystal face, we arrive at the conviction that the atoms in crystals, including metals, *are* arranged in regularly spaced planes; and by measuring, by means of this angle, the distance between the planes in three or more directions, we are able to construct models, like Figs. 1-5, showing the actual arrangement of atoms in common every-day substances, such as metals and salts.

In this way the arrangement of atoms and the exact distances between them have been found for thirty-four elements, including all the common metals, and for nearly one hundred common salts.

One of the remarkable results of these investigations is the simplicity of the atomic arrangements. The thirty-four elements analyzed represent only four different types of atomic arrangement, and these (models 1-4) are the simplest geometrical arrangements known, with one exception. The exception, which is the simplest of all (model 5) is the arrangement found for the common salts, such as sodium chloride.

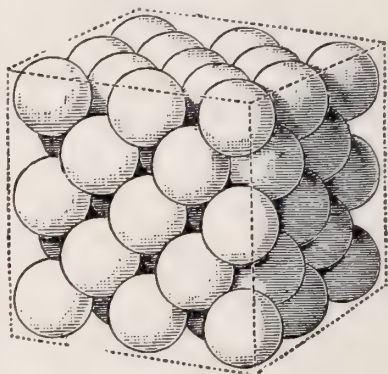
Model 1 represents the arrangement of atoms in copper. The original model, of which Fig. 1 is a photograph, is built to scale, and gives the distances between the atoms in inches, the scale being one to one hundred million. Exactly similar models, of slightly larger or smaller dimensions, would represent the arrangement of atoms in most of the other ductile

metals, such as silver, gold, lead, nickel, platinum fifteen in all, all ductile. This arrangement is especially interesting because it is one of the two alternative arrangements that solid spherical balls assume when put into a box and shaken until they are packed as closely as possible. The fact that the atoms of ductile metals arrange themselves in this way is a justification for our conception of them as smooth spheres.



MODEL 1 (a)

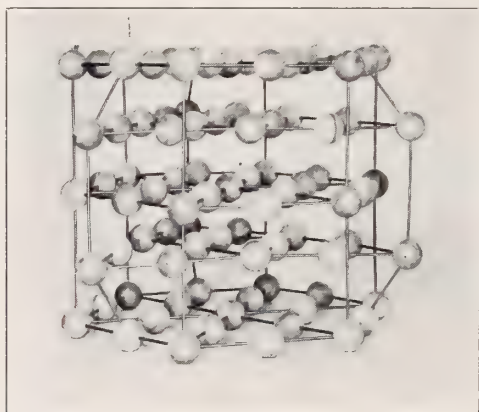
Face-centered cubic arrangement



MODEL 1 (b)

Face-centered cubic arrangement
(cubic close-packing)

There is one other metal, indium, whose atoms are arranged in exactly the same way as in model 1, except that the whole crystal is stretched six per cent in the direction of one of its cubic axes. The arrangement is

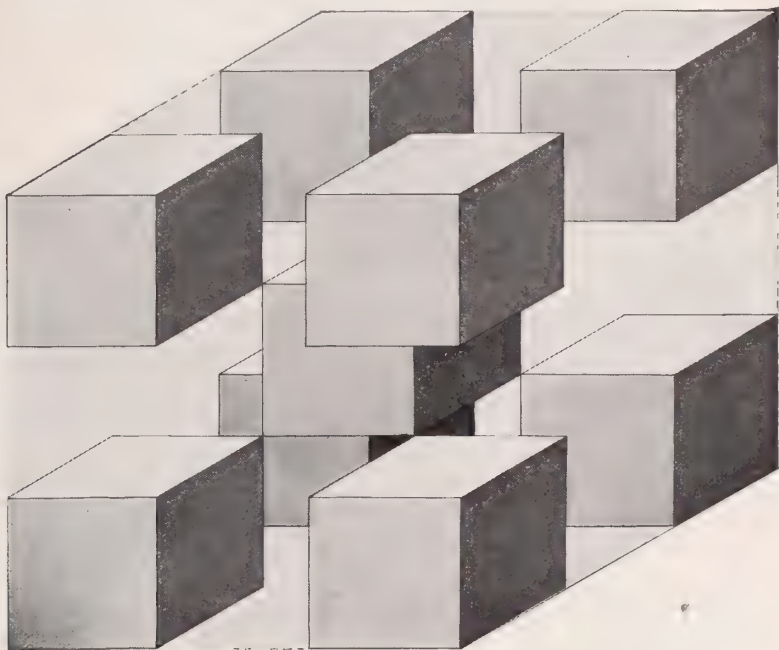


MODEL 2

Hexagonal close-packed arrangement

exactly that which eggs would assume if packed as closely as possible, and justifies us in picturing the indium atom, for the present at least, as an elongated spheroid.

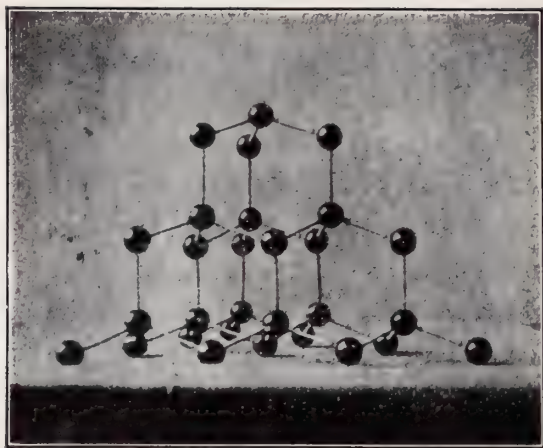
Model 2 represents, to scale, the arrangement of atoms in magnesium. This is the second of the two close packed arrangements of solid spherical balls. It is generally referred to as "hexagonal close packing," and the first arrangement, model 1, as "cubic close packing." The magnesium atom, also, may therefore be thought of as spherical.



MODEL 3
Body centered cubic arrangement

There are several other metals, such as zinc, cadmium, titanium—eight in all, whose arrangement is identical with that shown in model 2, except that the whole crystal is slightly elongated or shortened in the direction of the principal (hexagonal) axis, indicating that the atoms of these elements are elongated spheroids, like indium, or shortened, oblate spheroids.

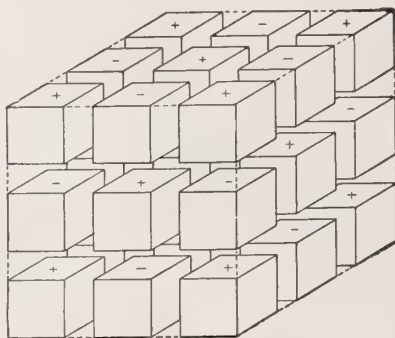
Model 3 represents the arrangement of atoms in iron, chromium, tungsten—seven metals in all. The atoms are shown as cubes to indicate that the forces holding them together are in the direction of the cube corners, each atom being surrounded by eight others. The evidence is that the atoms of these elements are not spherical, but either cubical or octahedral.



MODEL 4
Tetrahedral or diamond arrangement

Model 4 shows the arrangement of atoms in diamond, silicon and many salts, especially ammonium salts. Each atom is surrounded by four others, and the evidence is strong that the atoms themselves are really tetrahedral.

Model 5 shows the arrangement of atoms in the majority of simple salts like sodium chloride. This is the simplest geometrical structure known, the atoms being located only at cube corners. It will be noted that the two kinds of atoms alternate in the crystal, and that each atom of one kind is completely surrounded by six atoms of the other kind. This is exactly the arrangement we should expect if the atoms were cubes, and indicates, in conjunction with other chemical evidence, that the atoms of these elements really are cubical in shape.



MODEL 5
Simple cubic arrangement

The atomic arrangements represented in models 1-5 rest on excellent experimental evidence, and are universally accepted by physicists and chemists as representing the actual arrangements of the atoms. The distances between the atoms are known for each element within one half of one per cent. The conclusions regarding the shapes of the atoms are only tentative, but we have good reason to believe that the shapes also will soon be definitely known.

ALBERT W. HULL.

PATHOLOGY AND BACTERIOLOGY

Edited by VICTOR C. JACOBSON, M. D.

ASSOCIATE EDITOR

LAWRENCE J. EARLY, M. D.

PATHOLOGICAL CONFERENCE HELD AT THE ALBANY HOSPITAL

February 21, 1921

At the Pathological Conference held at the Albany Hospital, February 21, Dr. J. A. Sampson discussed the clinical aspects of the cases, Dr. V. C. Jacobson the pathological findings.

CASE I

Male, white. Age, 64 years.

Past History.—As a young man, he was refused life insurance repeatedly because of trouble with his heart.

During the month of November, 1920, he suffered from an infection over the right tendo Achillis. This apparently had its origin in a blister caused by his shoe. By November 28th he had fully recovered.

On May 15, 1921, he had a chill and rise of temperature to 102 deg. On the next day there was a small indurated sore on the outer side of the right tibia, with an enlarged node in the right groin. The area over the mid-tibial region sloughed, but by June 20th the patient had recovered and returned to work.

Other than the two instances above mentioned the patient had always enjoyed good health.

Present Illness.—December 1, 1921, the patient felt sick and went to bed. When seen at 4 p.m., his face was flushed, and he had a harsh dry cough. Temperature, 103.5 deg.; pulse, 110; respirations, 30. There were dullness over the right chest posteriorly and numerous fine and coarse moist râles, but no dullness over the left chest. Over the left base were a few patches of fine râles. Occasional cardiac extra-systoles were detected but no murmurs. Blood pressure, 160/100.

For ten days the temperature ranged between 102 deg. and 104 deg. The pulse under digitalis dropped to between eighty and ninety and the arrhythmia disappeared.

The temperature gradually dropped and from December 15th to 22nd it varied from 97 deg. to 99 deg., pulse 66 to 72, respirations 20 to 26. During this period there was an area of marked dullness 10 cms. wide at the right base. There were diminished breath sounds and whispered voice over this area. At the end of deep inspiration there were sounds suggesting distant fine and large moist râles. The left lung showed a few fine râles at the base. Liver and heart were not displaced. Physical



FIG. 1

Photograph of Section of the Right Lung showing the area in the upper lobe which contains the infected infarct. At X softening has occurred with connective tissue septa bridging the cavity so formed.

examination showed no enlargement of the heart and no murmurs; the pulse was regular. Blood pressure, 140/90.

On December 21st, aspiration of an area at the right base showed turbid yellowish fluid containing pneumococci in pure culture.

On December 23rd, temperature rose to 101 deg. The pulse rose gradually from 80 to 100 when the patient was admitted to the hospital on December 24th. Evacuation of the right pleural cavity by incision in the ninth interspace was done under local anesthesia and a drain was inserted.

Patient improved up to December 28th, when he had a hemorrhage from the incision. He became progressively weaker and had much respiratory distress. After numerous periods of unconsciousness and fairly constant high fever he died on January 2, 1922.

The diagnoses suggested were as follows:

- (1) Pneumonia with secondary empyema.
- (2) Pulmonary infarction.
- (3) Toxemia and terminal septicemia.
- (4) Myocarditis and endocarditis; possibly coronary sclerosis.
- (5) Pulmonary gangrene.
- (6) Neoplasm of the right leg with metastasis to the lung.

The post-mortem findings were: septic infarcts of the upper lobe of the right lung with abscess formation; acute and chronic fibrinous pleuritis with empyema (right); acute bronchopneumonia of the left upper lobe; hemorrhagic infarct of the lower lobe of left lung; chronic vegetative endocarditis of tricuspid, mitral and aortic valves; old and recent infarcts of the spleen and right kidney; hydrocele, with atrophy of the right testicle; chronic cholecystitis; cholelithiasis; arteriosclerosis.

In explaining his past history his cardiac valvular lesions may date from the time he was refused life insurance as a young man on account of "heart trouble." But the vegetative lesions on the valves affected were on the upper surfaces of the cusps and not involving the apposing surfaces. Hence the valves were embarrassed little if any and no striking change occurred in the myocardium. A more recent fibrin deposit had occurred on the mitral and aortic valve lesions and the infarcts found in kidneys and spleen probably were caused by emboli from the mitral or aortic valves. The tricuspid lesions were entirely of the healed variety. The thrombi in the right saphenous vein may have contributed emboli which lodging in the branches of the pulmonary artery resulted in the formation of infarcts. There was, however, an extreme grade of pulmonary arteriosclerosis, with obliterative changes and thrombosis, the condition of the walls of the pulmonary vessels being provocative of thrombosis. Several of the infarcts in the right lung became infected, probably from the adjacent lung tissue, as the infarcts in the left lung were not of the septic type, in spite of the presence of acute bronchopneumonia elsewhere in the lung, and also because the pneumococcus was the only organism demonstrated in the pleural exudate. The empyema was the result of the septic infarction of the right lung infecting the pleura.

CASE II

Male, white, married. Age, 30 years.

Past History.—Patient was struck on the right posterior parietal region four years ago.

Present Illness.—In August, 1921, there developed numbness in his left hand followed by gradually increasing motor weakness in his left hand and forearm, gradually extending to the left lower extremity and later to the left face. There was suboccipital headache at times. One month ago he had a severe convulsive seizure with unconsciousness and biting of the tongue.

Physical Examination shows complete left-sided hemiplegia, including facio-hypoglossal, unaccompanied by any perceptible rigidity or contracture.

Reflexes.—All tendon jerks increased on left side but without clonus; abdominal and cremastic reflexes abolished on the left side. Classical Babinski phenomenon is present on the left side.

Sensation.—There are anesthesia, analgesia and thermic anesthesia over both extremities on the left side, most marked in the hand and forearm, with gross loss of position sense in fingers, wrist, elbow and toes on the left side. There is no evidence of hemianopsia.

Eye Grounds.—Disk margin is well outlined but the veins seem markedly engorged, especially below. (One examiner considered the fundi negative.)

Lumbar Puncture.—Spinal fluid was under marked tension and showed increased globulin but was otherwise negative, including the Wassermann reaction. Blood Wassermann was negative.

On November 20, 1921, a decompression was performed. Following the operation the patient was stuporous; temperature 103.2 degrees. He became unconscious and died on the following day.

A tumor or cyst in the right fronto-parietal region was considered the most probable diagnosis.

An old depressed fracture in the parietal region was mentioned as a possibility.

Functional disturbances were ruled out by the neurological examination which indicated a definite organic central nervous lesion.

The necropsy was limited to an examination of the brain.

Dr. LaSalle Archambault has given the following description of the condition of the brain:

"The brain shows a slight, but definite, difference in size between the two hemispheres, this difference being especially noticeable over the right parietal region where a focal prominence is seen corresponding to the lower two-thirds of the posterior central convolution and the adjoining supramarginal gyrus. Some general flattening of the convolutions exists. At the base, a striking herniation of the right subiculum is noticed, as well as a decided demarcation of both cerebellar tonsils, but mainly of the right.

"Frontal sections carried through both cerebral hemispheres from before backwards show a decided symmetry between the two hemispheres,

the right being greatly broadened, pushed beyond the midplane with narrowing of the ventricular cavity, whereas the left is markedly compressed and shows a definite ventricular distention. At the frontal level of the genu of the internal capsule, evidence of change in color and texture of the cortex becomes apparent, the entire cortex of the parietal lobe and the subjacent white matter appears more or less homogeneous and presents vascular dilatations. A section taken at the level of the greatest external prominence shows more advanced pathological changes in the cortex. At this point a well defined hemorrhagic focus of probably six weeks duration at least is to be seen and the adjoining cortex is markedly disintegrated."

Histological sections of the brain showed the presence of a diffuse glioma involving the greater part of the right parietal lobe, both cortex and white matter.

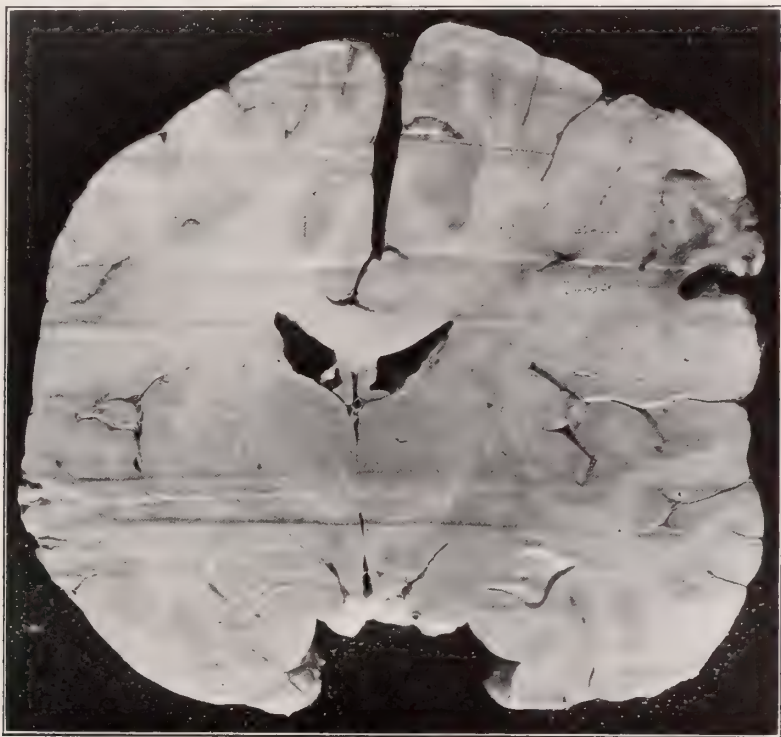


FIG. 2

Photograph of a Frontal Section of the Brain showing the gliomatous process in the right parietal lobe, with some general enlargement of the right hemisphere. The septum pellucidum is pushed to the left of the midline.

CURRENT EVENTS

Edited by WILLIAM P. HOWARD, M. D.

ALBANY DEPARTMENT OF HEALTH

STATISTICS, MARCH, 1922

DEATHS FOR THE MONTH OF MARCH, 1922

Cancer.....	24	Scarlet Fever.....	1
Broncho-pneumonia.....	21	Measles.....	0
Apoplexy.....	17	Typhoid Fever.....	0
Tuberculosis.....	14	Deaths under one year.....	16
Pneumonia.....	13	Deaths over 70.....	70
Bright's Disease.....	13	Deathrate (non-residents in-	
Diarrheal Diseases.....	5	cluded).....	21.33
Diphtheria.....	4	Death rate (non-residents ex-	
Influenza.....	3	cluded).....	18.27
Accidents and Violence.....	2	Births.....	185
Whooping Cough.....	2	Still Births.....	5

DIVISION OF COMMUNICABLE DISEASES

Influenza.....	374	Typhoid Fever.....	1
Pneumonia.....	94	Epidemic Sore Throat.....	1
Chickenpox.....	52	Epidemic Jaundice.....	1
Tuberculosis.....	28	Ophthalmia Neonatorum.....	1
Whooping Cough.....	28	Smallpox.....	0
Diphtheria and Croup.....	22	German Measles.....	0
Scarlet Fever.....	13		
Measles.....	11	Total.....	635
Mumps.....	8		
Number of days quarantine for scarlet fever:			
Longest.....	30	Shortest.....	30
Number of days quarantine for diphtheria:			
Longest.....	45	Shortest.....	10
Fumigations:			
Rooms.....	133	Buildings.....	29
Milk bottles disinfected.....	820		

MISCELLANEOUS

Tuberculosis

Living cases on record March 1, 1922.....	586
Cases reported:	
By card.....	21
Dead cases by certificate.....	7
	28

CURRENT EVENTS

251

Dead cases previously reported.....	7	
Dead cases not previously reported.....	7	
Removed.....	3	
Died out of town.....	4	
Recovered.....	0	
Unaccounted for.....	0	
	—	21
Living cases on record April 1, 1922.....		593
Total tuberculosis death certificates.....		14
Non-resident deaths:		
Albany Hospital Camp.....	2	
C. F. L. Pavilion.....	0	
Albany Hospital.....	1	
St. Margaret's House.....	0	
City at large.....	0	
	—	3
Resident deaths.....		11
Visits to cases of tuberculosis.....	144	
Visits to physicians.....	20	
Miscellaneous visits.....	43	

LABORATORY REPORT

Diphtheria

Initial positive.....	46
Initial negative.....	340
Release positive.....	148
Release negative.....	402
Unsatisfactory.....	20
Total.....	956

Sputum for Tuberculosis

Positive.....	68
Negative.....	152
Unsatisfactory.....	0
Total.....	220

Widals

Positive.....	1
Negative.....	22
Unsatisfactory.....	1
Total.....	24

Meningococcus

Positive.....	0
Negative.....	0
Total.....	0

Wassermann Tests

Positive.....	71
Negative.....	279
Unsatisfactory.....	9
Total.....	359

Gonorrhoea Examinations

Positive.....	14
Negative.....	57
Total.....	71

Milk analyses.....	229
Water analyses.....	12
Pathological examinations.....	0
Miscellaneous examinations.....	0
Total examinations.....	187

DIVISION OF MARKETS AND MILK

Public market inspections....	11	Dairies inspected.....	15
Market inspections.....	205	Milk houses examined.....	15
Fish market inspections.....	23	Milk cans inspected.....	168
Slaughter house inspections...	0	Milk rejected.....	80 qts.
Rendering establishment in-		Complaints investigated.....	2
spection.....	0	Bacterial counts.....	128 Lab.
Pork packing house inspections	9	Bacterial counts (special) 11	Lab.
Hide house inspections.....	0	Permits issued—peddlers.....	6
Cows examined.....	213	Permits issued—storekeepers	85
Cows quarantined.....	0	Lactometer readings.....	54
Cows rejected.....	13	Temperature readings.....	54
Milk depots inspected.....	39	Fat tests (130 Lab.).....	35
Inspections of stores selling		Sediment tests.....	35
milk.....	87		

THE ALBANY GUILD FOR PUBLIC HEALTH NURSING

REPORT FOR MARCH, 1922

1. *Patients:* Old carried from February, 494; new, 258; total, 752. Dismissed, 290. Carried into April, 462.
2. *Source of Cases:* Metropolitan Life Insurance, 61; doctors, 109; nurses, 8; dispensary, 43; family or friends, 27; other sources, 10. Classification of new cases: Medical, 175; surgical, 5; obstetrical, 39; tuberculosis, 23; venereal, 16.
3. *Visits.*—Total, 2380, classified as follows: Nursing—General nursing, 991; confinements attended, 39; post partum nursing, 200; post natal nursing, 223. Preventive—Prenatal, 81; postal natal welfare 18; post partum welfare, 42; pre school welfare, 78; T. B. inst. and super., 108; V. D. inst. and super., 10; cardiac, 5; observation and super., 180; other purposes, 405.
4. *Disposition of Cases.*—Recovered, 80; improved, 59; unimproved, 38; to hospital, 18; dead, 7; to other care, 49; T. B., 17; venereal, 22.

ACTIVITIES OF SOCIETIES

The regular monthly meeting of the Medical Society of the County of Albany was held in the Adelphi Club, 134 State Street, Albany, Wednesday, April 12, 1922, at 8:30 p.m., with Thomas W. Jenkins, M. D., president, in the chair. Dr. William M. Morrison was elected to membership.

SCIENTIFIC PROGRAM.—“Pathology of the Strawberry Gall Bladder,” by Dr. Philip C. Hacker; “Some Interesting Problems in Urological Surgery,” by Dr. Oswald A. Lowsley, New York City.

The twenty-third annual meeting of the American Proctologic Society will be held at St. Louis, Mo., May 22 and 23, 1922. Meeting place and headquarters, Hotel Claridge. The profession is cordially invited to attend the public sessions.

SMALLPOX IN NEW YORK STATE

Seven cases of smallpox have been reported to the State Department of Health since the first of January of the present year. This refers to the State of New York outside of New York City, where four additional cases have been reported in the same time. Of the upstate cases, four have occurred in Niagara Falls, one in Norfolk, St. Lawrence County, and two in or near Northport, Suffolk County. There is strong suspicion that the cases in the northern and western parts of the state arose from communities across the Canadian border, where smallpox is said to have been prevalent in a mild form for some time past. There appears to be a suspicious connection between the Long Island cases and the occurrence of smallpox in Connecticut. The United States Public Health Service reports that fifty-three cases of the disease have occurred in Bridgeport since December 1, 1921. A colored woman from that city who visited her sister and niece in Suffolk County was the only possible source of the infection in those two cases that the Department was able to find.

Smallpox has also appeared in Bethel and Danbury, Connecticut, and the health authorities of that state are co-operating actively with the New York State and local health officers to prevent the introduction of the disease into Dutchess, Putnam and Westchester Counties. The village of Brewster, from which a regular bus service is maintained to Bethel, Conn., has taken prompt action through its town and village boards to urge everyone to be vaccinated and to offer free vaccination to those unable to pay. The New York State Department, through its sanitary supervisor, is also urging the vaccination of employees of manufacturing plants in Brewster. All physicians practicing along the Connecticut border have likewise been informed of the prevalence of smallpox in the nearby Connecticut towns and have been urged to observe with extra care any cases of eruptive disease coming to their attention. Up to the present time, however, no case of smallpox has been reported from Putnam or adjoining counties in New York State.

Of the seven cases occurring in other upstate counties since the first of January, six had never been vaccinated, and the seventh was a young girl who had not been vaccinated since she was a small child, ten years ago.

ALUMNI NOTES

Edited by CHARLES C. DURYEE, M. D.

1855

DR. HARMON A. BUCK resides at Burlington, Vt. Dr. Buck is not now in practice.

1866

DR. E. W. GALLUP is practicing at Stamford, Delaware County, N. Y.

1874

DR. HIRAM K. WORDEN is practicing at Westmoreland, Oneida County, N. Y. Dr. Worden is health officer of that town

DR. EDWIN S. HOYT is in practice at Rhinebeck, N. Y. Dr. Hoyt is health officer of the town of Clinton, Dutchess County.

DR. EDGAR V. TRULL is practicing his profession at Manchester, Vt.

1875

★ DR. FRANKLIN P. BEARD died at his home in Cobleskill, N. Y., March 7th, 1922, from symptoms which indicated a gradual wearing out following the strain of a long and active life. He was born in the town of Summit, Schoharie County, N. Y., on November 29th, 1852, a son of Jacob L. Beard and Polly Wiltsie. Before his course in the Albany Medical College he taught school for three years, and immediately after graduation began the practice of his profession in the town of his birth. In 1887 he removed to Cobleskill, in which village he became the dean of the profession, and in addition to his large practice retained a lively interest in the agricultural activities of his neighborhood. He was supervisor of the town of Summit, and coroner for many years, and under President Cleveland and President Wilson served as a United States Pension Examiner. He was a member of Cobleskill Masonic Lodge, Number 394, F. and A. M., and also Temple Commandery of Albany. Dr. Beard married in 1872 Miss Alice M. Chickering, who survives. Five of their six children are living, two of whom, Dr. John J. and Dr. David W., graduates of the Albany Medical College, are successors of their father in medical practice in Cobleskill.

1879

DR. ORLANDO J. HALLENBECK has been health officer of Canandaigua for over twenty-two years.

DR. GEORGE M. ABBOTT of Saranac Lake is secretary of the Medical Society of the County of Franklin, N. Y.

1880

DR. DANIEL F. DONOGHUE is in practice at Holyoke, Mass. Dr. Donoghue's office address is No. 131 Chestnut Street.

DR. CHARLES F. WICKER is practicing at Saranac Lake, where he has been a resident for many years.

1881

DR. ALVA E. ABRAMS located at Hartford, Conn., soon after his graduation and has practiced in that city continuously.

1882

★ DR. WILLIAM KAMP, Belleville, Kans., died March 7, 1922, aged 65. Dr. Kamp was formerly mayor of Belleville.

1883

DR. WILLIAM S. DONNELLY of Wayville, Saratoga County, is health officer of the consolidated health district of the town and village of Stillwater.

DR. CHARLES A. GILLETTE is practicing at La Fayette, Onondaga County, N. Y.

1884

DR. HAMILTON HOLLIDAY is in practice at Fort Edward, N. Y.

DR. W. CLINTON KELLOGG is in practice at 203 Seymour Street, Syracuse, N. Y. Dr. Kellogg is attending physician to the Crouse-Irving Hospital.

1885

DR. WILLIAM C. FAWDREY, Lorraine, Jefferson County, N. Y., is health officer of the consolidated health district of the towns of Lorraine and Worth.

DR. ELMER E. LARKIN served as interne in the Albany Hospital, after which he practiced in Albany until 1893 when he removed to Plattsburgh, N. Y., where he has been in active practice since. Dr. Larkin is attending surgeon, Champlain Valley Hospital.

DR. J. H. VAN RENSSELAER practiced in Oneonta for ten years. In 1897 he located in Syracuse where he has since been.

DR. R. A. McDUGALL of Duanesburgh, N. Y., has been appointed health officer of the newly incorporated village of Delanson. Dr. McDougall has for many years been health officer of the towns of Duanesburgh and Princetown, Schenectady County.

1886

DR. CHARLES T. WALTON is in practice at Port Henry, Essex County, N. Y.

★ DR. EUGENE H. COONS of Gloversville, N. Y., died March 6, 1922, aged 62.

1887

DR. RICHARD J. HOGAN is practicing at No. 5 Center Street, Glens Falls, N. Y.

DR. ARTHUR W. JOHNSON is in practice at Mechanicsville, N. Y.

1888

DR. FRANK H. WINSHIP is practicing at Eagle Mills, N. Y. Dr. Winship is health officer of the town of Brunswick, Rensselaer County.

DR. Z. F. DUNNING is practicing at Devon, New Haven County, Conn. Dr. Dunning is a member of the Medical Society of the County of Columbia, N. Y.

DR. JOHN ARCHIBALD is practicing in Cohoes, N. Y. Dr. Archibald is the efficient health officer of that city and was formerly mayor.

DR. EVERETT E. POTTER is practicing at North Pownal, Vt.

1889

DR. MARSHALL A. BURT of Charlton, Saratoga County, N. Y., is health officer of the town of Charlton.

DR. WILLIAM VAN DOREN is in active practice at Mechanicsville, N. Y. Dr. Van Doren has for some years been health officer of the city.

1890

DR. MELVILLE D. DICKINSON is located at 1937 Fifth Avenue, Troy, N. Y. Dr. Dickinson is surgeon to the Troy Hospital and health officer of the city of Troy. He is also president of the Eastern New York Public Health Association.

DR. E. S. SIMPKINS is in practice at Middleburgh, Schoharie County, N. Y.

1891

DR. FRANK E. DEAN is practicing in South Shaftsbury, Vt.

DR. WILLIAM J. FLEMING, 169 Third Street, Troy, N. Y., is deputy health officer and medical inspector of the Troy public schools. Dr. Fleming is a member of the Executive Committee of the Alumni Association of the Albany Medical College.

DR. HARMON A. STALEY is in practice at 797 State Street, Schenectady, N. Y.

1893

DR. THOMAS W. JENKINS of 524 Madison Avenue, Albany, N. Y., is president of the Medical Society of the County of Albany.

DR. JOHN LEDLIE of Saratoga, N. Y., has been elected treasurer of the Medical Society of the County of Saratoga.

1894

DR. H. W. LUCHSINGER is in practice at Housatonic, Mass.

DR. FREDERIC P. VAN DENBURGH is in active practice at Round Lake, N. Y.

DR. CHARLES BERNSTEIN is superintendent of the New York State Custodial Asylum at Rome, N. Y. Dr. Bernstein lectured to the post-graduate class in Infectious Diseases and Public Health at the Albany Medical College, May 18, 1922. His subject was "Mental Defectives."

1895

DR. EDWIN VAN GAASBECK BALDWIN is in practice at Fairhaven, Rutland County, Vt.

★ DR. WALTER KENDRICK QUACKENBUSH, Argyle, Wis., died recently from a hemorrhage following tonsillectomy, aged 52 years. He was a

member of the Medical Society of the State of Wisconsin. Dr. Quackenbush began practice at Lansingburg, N. Y., serving on the medical staff of the Leonard Hospital. In 1900 he located in Trenton, N. J., where he had a good practice. He was health officer while there. A severe illness obliged him to give up and he then practiced successively at Utica, Albion, Medina and Trumansburg, N. Y.

1896

DR. JOHN D. VEDDER of Johnstown is treasurer of the Medical Society of the County of Fulton.

DR. J. E. VIGEANT of Red Hook, N. Y., is president of the Medical Society of the counties of Dutchess and Putnam, N. Y.

DR. PHILLIP S. YOUNG is practicing at Sidney, Delaware County, N. Y.

1897

DR. MARSHALL LATCHER is located in Oneonta, N. Y., where he is devoting his time principally to surgery.

DR. GEORGE E. SCHOOLCRAFT is located at Hartwick, N. Y., where he enjoys a good practice. Dr. Schoolcraft is health officer of the town of Hartwick.

DR. WILLIAM E. SILCOCKS of Green Island, N. Y., was on March 16 1922, elected president of the Green Island Chamber of Commerce.

DR. EDWARD N. BIBBY is in practice at Craftsbury, Orleans County, Vt.

1898

DR. WILLIAM L. WILSON is in practice at Scotia, N. Y. Dr. Wilson has been health officer of Scotia for several years.

1899

DR. W. T. KNOWLTON is in practice at Hubbardstown, Mass.

DR. M. J. DELEHANTY is in practice at Rutland, Vt.

DR. JAMES E. McDONALD is in practice at Cohoes, N. Y. Dr. McDonald has recently been appointed postmaster of Cohoes by President Harding.

DR. JAMES E. DOIG is in practice at Endicott, Broome County, N. Y.

DR. LESTER BETTS is in practice at 813 Union Street, Schenectady, N. Y. Dr. Betts is attending physician to the Ellis Hospital.

1900

DR. KLEBER A. CAMPBELL is practicing at Hopedale, Mass.

1901

DR. D. DUANE PARISH of Lyon Falls, N. Y., is president of the Medical Society of the County of Lewis.

DR. CLAYTON K. HASKELL is in practice at 363 Earl Avenue, Rochester, N. Y.

DR. GEORGE S. BURNS is practicing at 1028 Clinton Avenue, Rochester, N. Y.

1904

DR. ARTHUR W. THOMAS is in practice at Jamaica, Windham County, Vt.

DR. THOMAS F. COLE is in practice at Romulus, Seneca County, N. Y., and is health officer of the town of Vanick.

DR. THOMAS J. DOWD of Ticonderoga, is president of the Medical Society of the County of Essex.

1905

DR. CHARLES W. STRATTON is practicing at Lee, Mass.

DR. F. J. SCOTT of 45 Maine Street, Cohoes, N. Y., is practicing at Waterford. Dr. Scott is health officer of the consolidated health district of the village and town of Waterford.

1906

DR. EDWARD J. WHIPPLE is in practice at 323 Wellington Avenue, Rochester, N. Y.

1907

DR. HOWARD P. CARPENTER of the Hudson River State Hospital, Poughkeepsie, is secretary of the Medical Society of the counties of Dutchess and Putnam.

DR. D. W. JENNINGS of Catskill, N. Y., is secretary of the Medical Society of the County of Greene.

1908

DR. E. HOWARD BURNES is in practice at 1204 Gifford Avenue, Rochester, N. Y.

DR. RAY E. SMITH is in practice at Rutland, Vt.

1909

DR. E. R. MESSER is located at Lee, Mass.

1910

DR. JAMES W. BYRNE is in practice at 501 Albany Street, Utica, N. Y.

DR. RICHARD B. GRAY is in practice at Rensselaer, N. Y. Dr. Gray has been health officer for several years.

1911

DR. RALPH B. POST of Ballston Spa, is secretary of the Medical Society of the County of Saratoga.

DR. MARTIN J. A'HEARN is practicing at 353 Genesee Street, Utica, N. Y.

1912

DR. FLOYD H. MOORE is practicing at Herkimer, N. Y.

DR. JOHN L. EDWARDS is located at Hudson, N. Y.

1913

DR. WILLIAM H. LADUE of Morrisonville, is president of the Medical Society of the County of Clinton.

ALBANY MEDICAL ANNALS

MEDICAL LEGISLATIVE PROGRAM OF PENNSYLVANIA

*Read before the Schenectady County Medical Society, Schenectady, N. Y.,
February 14, 1922*

By FREDERICK L. VAN SICKLE, M. D.

Executive Secretary of the Medical Society of the State of Pennsylvania

The history of lawmaking as it has affected medical practice, or the practice of the healing art, has been no different in Pennsylvania from that of the other older states of the Union. Up until 1885, any one could begin the practice of medicine by exposing to the breezes a sign stating that Dr. So-and-So was within and ready to treat the sick of the vicinity. In that year a law was enacted which compelled every physician, who had practiced medicine for ten or more years prior to the enactment of the law, to present his credentials to the prothonotary of the court and have registered in a book such facts as give him license and enable him to practice. Had the applicant a diploma from a regular medical college, such diploma was registered and certified to.

At that time we had three distinct schools with three distinct boards, which examined and granted the candidates a license, and these continued as separate boards until 1911 when a one board bill was enacted and the Regular School of Medicine, the Homeopathic School and the Eclectic School were combined under one board with the title of the Bureau of Medical Education and Licensure. So far as the

practice of regular medicine is concerned, this is the condition of Pennsylvania today, but since 1911 and up to the present time the standards of medical colleges have gradually risen. The early requirements of medical education were a two year (six months each) course of lectures with a final oral examination. About 1880, the three year course was begun in some of the medical colleges, with written and oral examinations. Subsequent to that date came the four year course of nine months each, with a two year pre-medical course of physics, biology, chemistry and other subjects; and later on the internship in an accredited hospital for one year was added as a prerequisite to admission to examination and licensure before the Bureau.

The first one of the school of cults to gain admission as a separate board was the osteopaths. Then came the optometrists. We, of course, in Pennsylvania do not have a combination by which all of those who are associated in the practice of the healing art come together under a central control, such as you in the State of New York and some other states have. The dental surgeons have their examining and licensing board and the pharmacists have their board. The nurses have a board of examiners for registered nurses, and our midwives are examined under the Bureau of Medical Education and Licensure, as well as those who practice any form of drugless healing other than the osteopaths.

This condition, then, is the one under which Pennsylvania now exists from the viewpoint of practice of the healing art. In the early days of legislation no apparent system existed by which the voice of our educated professions could reach the Legislature *en masse*. Influence was exerted largely by the individual who had an interest in his profession and who would spend his own time and money to visit the Capitol and therein influence the members of the Assembly. When the subject of "Workmen's Compensation" was brought to the attention of the profession, there was no organization or system by which the voice of the medical profession of the state could reach the lawmakers and, therefore, we had a bill presented to us, in the making of which we had no part and over the provisions of which we

had no control. In 1915 the then president of the Medical Society of the State of Pennsylvania, Dr. John B. McAlister, of Harrisburg, conceived the necessity of getting together representatives of the three schools of medicine for the purpose of making an effort to wield a collective influence in legislative matters. A meeting of the representatives of the three schools was called and an organization effected, which to a certain extent began a campaign of influence destined to bear considerable fruit.

During the session of 1917, there was introduced into the Legislature of Pennsylvania a resolution creating a commission to study the subject of "compulsory health insurance," which commission was appointed by the Governor of the State, and functioned through the two years until the session of 1919. They made a report, but it did not carry with it a bill for compulsory health insurance. By a resolution, the Governor was directed to appoint another commission to continue the study of the subject. This commission was in due time appointed and made investigations and held hearings throughout the State of Pennsylvania, and in 1921 rendered its final report to the Governor of the State denying the fact of a need for a compulsory health insurance measure at that time.

Knocking at the doors of the Legislature in 1919 and 1921 came the School of Chiropractic, which requested admission to practice their theory under the direction of a separate board. This privilege was denied them, due to the fact that their preliminary requirements were not sufficiently advanced to warrant recognition such as they requested, and therefore, at the present time the chiropractic practitioners are licensed under the Bureau of Medical Education and Licensure as drugless therapists—at least as many as are licensed, which number amounts to a little over 100 in Pennsylvania. It is claimed that there are about seven or eight hundred of them in the state.

Beginning with the first effort of 1915 by Dr. McAlister and following him in 1917, I had the pleasure of representing the Conference in the 1919 Assembly. In 1921 Dr. Geo. A. Knowles, of Philadelphia, became my successor as president

of the Medical Legislative Conference. This Conference has been of immense value as an aid in bringing before the Legislature the views of more than 11,000 members of the medical profession upon the various questions of legislation that came up during each session. We have been successful in preventing the passage of any laws against vaccination and against vivisection. The Department of Health has received united support on the part of the profession through this Conference, which has also been of material help to the Committee on Public Health and Sanitation of both House and Senate in discussing the various measures that came up and were referred to these committees.

There can be no doubt of the decided advantage of united action under a committee such as our Conference, wherein a definite stand may be taken upon any particular question which needs discussion and decision. Constructive legislation has been advocated largely through this Conference and much benefit has been brought about in our Workmen's Compensation Law through amendments, as well as the enactment of other laws relative to the health and sanitation of the people of Pennsylvania. The Workmen's Compensation Act was amended in 1919, and we felt that in 1921 we had better refrain from interfering because of a danger that it might react and bring further amendments which would be detrimental to our cause. It is probable in 1923, if there should be any reason for proposing amendments, that these will be brought forth by the Conference.

I am sure that Pennsylvania today stands in a better condition regarding legislation than it has in many years. I say this without any degree of boasting, because I feel that as a unit the medical profession, while as apathetic as ever, are yet in earnest in their endeavor properly to direct the views of the profession as to legislation, and to advise legislators both regarding health and sanitation and laws relating to the practice of the healing art. Our Medical Legislative Conference now consists of five members from each of the three state medical societies—The Medical Society of the State of Pennsylvania, the Homeopathic

Society of the State of Pennsylvania and the Eclectic Society of the State of Pennsylvania. This committee of five from each of these societies is appointed by the president of each, and when meeting together they compose the Medical Legislative Conference. During the past five years there has been a very harmonious feeling among medical men that this is about the best method we can pursue to prevent bad legislation, and at the same time present for constructive legislative enactment, both as acts or amendments of acts, the various measures that need to be considered.

The financing of this Medical Legislative Conference is done by a volunteer assessment of \$1 or more per member from each of the members of organized medicine. I am sorry to say that not every member of the county societies considers it his duty to contribute, and yet in 1919 and 1921, contributions were of sufficient amount to carry on the work of the Conference judiciously.

In 1921 we published bulletins, which were distributed to members of the county societies, informing them of the progress of any legislation that was before the House or Senate. By this means we were able to keep an interest aroused among our members and were able to reach the senator or representative in his home by the members of the county society in his district, and through them could voice the opinion which they knew the profession would wish to express.

Another point in connection with this problem of legislation is that we feel a better understanding should exist between states that have standards such as New York and Pennsylvania regarding medical affairs. True, each state is supposed to have its inherent right to create such laws as are needed for the individual state, but in medicine it would seem that a better and more intimate relationship should exist between the various states of the same standard.

Apropos to this question of relationship there are some subjects to which we might refer, and first of these is the question of medical education. For some time my hobby has been the education required to become a doctor of

medicine. In Pennsylvania, through our Board of Medical Education and Licensure, it requires at least seven years — two years of pre-medical study (or a college degree) following graduation from a high school, four years in an accredited medical college, and one year as a hospital interne in an accredited hospital — before the candidate is eligible to appear before the Bureau of Medical Education and Licensure for examination. When we review all of the various walks in life, in business and the professions, the young man who proposes to study medicine has a big proposition to consider, for, to practice in our state, he is confronted with a long, long wait and a considerable outlay of money before he may be able to earn a dollar.

More and more also it seems to be the trend of public opinion to open the doors to the cults, whose devotees after a short course of instruction are permitted to practice their theories upon the people, and we find that immediately they are able to earn, not only a living, but in many cases to accumulate large sums of money. It is not possible for one state to change its methods without being liable to severe criticism were the number of years to be reduced in the educational curriculum; however, I feel that there is a full year of non-essentials somewhere between the graduation from high school and the receipt of license from our Bureau to practice medicine. In other words, a year's time should be saved to the medical student by eliminating from each year some of the unnecessary work which is now done, thereby cutting down the requirements to that extent. In this it is not necessary to lower the standards of education, and in fact I think that a more thorough course could be given the student, which would be useful to him or her in after-practice and experience.

In this connection, I wish that some of the members of your Society would discuss briefly the success of the Regents' plan of control of examination and licensure of those who practice the healing art, for we in Pennsylvania have much admired, at a distance, what has been accomplished in this state in the years gone by, and while we have no recent information, we should be pleased to learn of the attitude

of the medical profession as it is affected by the Board of Regents.

There is also another item which would bear discussion, and that is the relation of the subject of socialized medicine (such as exists in our present Workmen's Compensation Act) with a possible chance that some time or other health insurance or state medicine may creep in to control us. I am not prepared today to discuss the subject of health insurance, nor the Workmen's Compensation Act in relation to New York and Pennsylvania, but I do think, if it were possible for organizations to be more closely kept in touch with each other, that conditions which exist in each of our states would improve.

In conclusion, I feel that there is dawning upon the medical horizon much that should agitate the mind of the practitioner of medicine not only for his own future welfare, but for that of those who come after him. When I read, as I have the opportunity to do, the thirty or more medical magazines that come to my desk from the different states of the Union, and note the editorials dealing with the various economic problems, I am sure there is a decided tone of unrest and alarm that is portentous. Is the practice of medicine to be commercialized? Is the practice of medicine to be under state or national control? Will it be necessary for the practitioner of medicine to compete with the cults by reducing his curriculum, or to wage a severe fight upon those who come in the side door with little or no requirements? Will industrial and socialized medicine be upon the salary basis? In fact, the field for discussion is a very large one and only through medical organization, through unity of purpose and action, can we, who are now reviewing the past with the knowledge of the present and anticipating what we must contend with in the future, be alert to the conditions which possibly may be brought about.

REGULATION OF MEDICAL PRACTICE

Read before the Schenectady County Medical Society, February 14, 1922

By W. D. CUTTER, M.D.

State Education Department, Albany, N. Y.

Man is a medicine-taking animal according to Oliver Wendell Holmes. He might have amplified that statement by saying that man is inherently credulous regarding disease. When the semi-simian progenitor of the human race first acquired a memory durable enough to store his complex experiences, and, rummaging through this storehouse, began to reflect upon his relation to the world around him, one of the things that compelled his attention and greatly stimulated his speculation was that dominant symptom of bodily injury or disease, pain. Unable to fathom the mystery, the reality of his suffering bred in him, through aeons of time, a faith in the occult which a century of science has by no means eradicated.

Those of you who have read Mr. Wells' book, which, by the way, is a homily, not a history, will recall that our most ancient records reveal a social stratification among the river populations, the king and priest being set apart from the rest of the people. These two functions were soon divorced, the kings not unnaturally retaining for themselves the control of material things which ensured their physical comfort, the priests, perhaps more shrewdly appropriating the kingdom of the supernatural, and exerting, I believe, a more profound influence upon the trend of human affairs. For many thousands of years, and, among primitive races, to this day, the art of healing, in so far as it calls for special knowledge or skill, has been a function of the priests. But, it should be remembered, this special skill was not requisitioned in all cases, only in the more serious and prolonged illnesses, and even then, perhaps, only among the well to do. The vast majority of common ailments were treated by the laity. Such was the status of the practice of medicine until the golden age of the Greek cities and the Roman republic. Even then the physician was not so much a member of a distinct profession as a specialist in a particular kind

of priestcraft. The temples of Esculapius were the only medical schools; the traditions of their votaries the only store of medical knowledge.

Not until the days of the Roman Empire, under the Antonines, do we find a law prohibiting unauthorized persons from practicing medicine. Soon followed the break-up of the empire and the consequent disintegration of society. In the following centuries, in Western Europe at least, learning was cloistered and such medical knowledge as survived was in the hands of the monks. The Renaissance exhumed the Justinian Code, the foundation of the legal systems of continental Europe. From this source France and Belgium have derived their methods of regulating practice which are prohibitive and which are actually effective. This substantive law, enforced by absolute rulers, was very different from the legal system which was developing in England. Having early established an independent judiciary and the right of trial by jury, the British people came to rely almost wholly upon the common, or judge-made law, rather than upon statute law. Also, the British nation, after consolidation, had only one law-making body, instead of being afflicted with an infinitude of legislative assemblies. So we find that England has never prohibited the practice of medicine by unqualified persons. With the development of medicine as a distinct profession recognition has been accorded to those who have been properly trained. The degree of the universities, the license of the conjoint board, and membership in the royal societies have been fully protected against impostors. But the state has never attempted to forbid the public from seeking medical assistance in other quarters. The public is, however, protected to this extent, that an unauthorized practitioner cannot collect for his services through the courts, and further, if sued for malpractice, the burden is placed upon him of proving that he has employed reasonable knowledge and skill.

The early settlers in this country were British, and brought with them British traditions and English common law. One would suppose that they would have adhered to the British

principle in licensure as have all other English speaking colonies except in so far as they have been influenced by contact with the United States. It would be interesting, but beyond my power to trace and evaluate the influences that led to the adoption in this country of a policy so exactly the reverse of that of the mother country. Two factors, however, I think I can safely name. First, the inevitable reaction, as communities grew in size and social complexity, against the indiscriminate treatment of the sick by untrained persons which necessarily prevailed in the pioneer life of the sparsely settled colonies; and second, the mania for legislation as a panacea for all human ills, which is still unhappily with us. Whatever may be the causes, it is clear that in 1760 the General Assembly of the colony of New York enacted a law prohibiting the practice of medicine by unqualified persons, the first of its kind in the New World. The preamble reads:

"Whereas many ignorant and unskilful persons in physick and surgery in order to gain a subsistence do take upon themselves to administer physick and practice surgery in the City of New York to the endangering of the lives of many of their patients; and many poor and ignorant persons inhabiting the City, who have been persuaded to become their patients, have been great sufferers thereby: for preventing such abuses for the future be it enacted, etc."

This act provided that no one should practice as a physician or surgeon in said city, unless first examined in physic and surgery, and approved and admitted by one of His Majesty's council, the judges of the supreme court, the King's attorney general, and the mayor of the city for the time being, or any three of them, calling to their aid in making such examination such proper person, or persons as they in their discretion should think fit. A testimonial in a form prescribed by the statute was given to a successful candidate and the penalty for practicing without such authorization was five pounds for each offense, one half thereof for the use of anyone suing for the same, and the other moiety to the church wardens and vestrymen of the city for the use of the poor. Exemptions were made of persons in practice before the publication of the Act and persons bearing His Majesty's commission and in his service

as physicians or surgeons. It will be noticed that no attempt is made in this statute to determine the range of examination or prescribe the term of study.

Immediately after the Revolution the law was re-enacted and amplified so that after its passage no one should practice physic or surgery within said city before he should have both attended the practice of some reputable physician for two years, if a graduate of a college, or for three years if not a graduate, and been examined, admitted, and approved by the governor, chancellor, judges of the supreme court, attorney general, mayor and recorder, or any two of them, taking to their aid three respectable physicians and with whom the candidate had not "lived to acquire medical information." In addition to the penalty of seven pounds for practicing without a testimonial of qualification, payable half to the person suing for it and half to the use of the poor, it was also provided that no person so practicing could bring an action to recover for services or medicines. Persons practicing before the passage of the Act, persons rendering gratuitous aid in emergencies, practitioners of neighboring states or counties called into consultation on a particular case, and persons having the degree of doctor of medicine from any college or university of the United States having authority to confer it were all exempt from the provisions of the Act.

With various modifications of its educational standards and with many shifts in the location of the licensing power, that law remains upon the statute books today, and is, if anything, less effective today than when it was first written. Other states have followed where New York led. Recently having had occasion to check the laws of the states I have found that every one, including Alaska and the District of Columbia, has upon the statute books a law forbidding the practice of medicine by unqualified persons. In not one of the states is the law enforced. Most of the states, New York among them, having established barriers to protect their citizens from injury at the hands of ignorant and unskilled persons, have legally nullified these provisions by opening the back door to one or more sorts of unqualified

persons who seek to practice medicine under an "alias." In addition to this legislative indifference there is the common or garden variety of official indifference. Of this also New York is guilty. More than 1,500 chiropractors are busily coining money in this state, in violation of the law and no effective attempt is made to suppress them. The district attorney says it is the business of the county medical society and the members of the county society say "why should we spend our money to try to protect the people from the consequences of their folly when after all the jury will acquit and the public attributes our activity to spite?"

If the facts are as I have stated them there is a fundamental discrepancy between laws on our statute books and public opinion as it is translated into action in our various commonwealths. I have pointed out that mankind has a deep-rooted credulity if he is not incurably superstitious with respect to disease, and so long as he believes in natural bone-setters or chiropractors, Perkins' tractors or patent medicines, so long he will employ them regardless of the law.

A law that is openly defied is demoralizing to the whole community. What then shall we do? Obviously there are two alternatives. Enforce the law; or repeal it; repeal, that is, so much of it as prohibits the practice of medicine by unlicensed persons but protect even more assiduously than now the hard earned titles and degrees of the real physician.

As for the first of these alternatives I do not know whether it is possible or not. If it is, the first step in that direction is the passage of the shorter of the two bills which have been presented to the legislature by the State Medical Society and which will be discussed by the chairman of your legislative committee.*

The second alternative, repealing the prohibitory clause with respect to practice, would bring us back to the English method of dealing with this problem, which may, after all, be the truly American way of dealing with it.

* Since this article was written the bill in question has been passed by both houses of the legislature and vetoed by the governor.

A CHAPTER ON SANITARY DUTIES, AS OBSERVED IN THE HISTORY OF ALBANY, FROM 1859 TO DECEMBER 31, 1921

By ALBERT VANDER VEER, M. D.

Albany, New York

(Continued from May ANNALS, p. 226)

November 18. Better protection for public health recommended by the Board, and the Common Council passed a law requiring the laying of proper drains in Trinity Place, below Ash Grove Place and Arch Street. This was adopted.

December 2. Common Council desired the presence of some member of the Board of Health at a meeting, for the purpose of answering necessary questions in relation to the appropriation for the budget of 1899. Commissioner Dyer was assigned for this duty.

1899. City officials continued, with the exception of Dr. Theodore P. Bailey in place of Dr. Balch, the latter having been granted leave of absence in May, for Spanish-American War work. George F. Bachman placed in charge of work of Board of Health.

Death rate for 1898, 10.03, lower than for years.

Hospital for smallpox cases ready for patients. No smallpox in 1898.

Inspection of contagious diseases	5,850
Plumbing, drainage and ventilation	15,696
Markets.....	2,032

Total23,578

Increased inspections over 1897, 2,594.

Complaints regarding privy vaults growing less. Most have been removed by Board of Health. New sewers on Second and Third streets, above Judson Street. Previously houses drained into street, and it was a vast pest hole. Good health essential to happiness, and indoor citizens desire every precaution taken to secure this greatest of all blessings. Paving of streets for past ten years has done

much good. Return of birth certificates still very incomplete, and forty-one per cent signed by midwives, which shows doctors are very negligent.

January 13. Thanks extended to Dr. Bristol for voluntarily vaccinating school children at the opening of schools last September.

In 1898 Mr. Ten Eyck was appointed inspector to examine into sanitary conditions, etc., of Empire Theater, Albany Savings Bank, Albany Hospital buildings, St. Mary's Centennial School and Public School No. 6. Plumbing and ventilating conditions were investigated at Kenmore Hotel, Harmanus Bleecker Hall, Commercial Bank Building, Academy of Sacred Heart, and First and Second Precinct Police Stations.

Number of complaints received.....	1,760
Privy vaults cleaned and filled.....	170
Marriages.....	556
Births.....	1,279
Deaths.....	1,903
Population.....	100,000

February 17. Ice examination carried out vigorously, also smoke nuisance.

April 7. \$30.83 per month to Dr. MacFarlane, for examination of diphtheria and Tb. specimens, and out of this amount a man paid to collect tubes.

Drains condemned in different parts of city. Bill for stamps, paper, etc., \$11.10; cuspidors, \$4.50.

Communication from Bender Laboratory regarding examination for suspected cases of diphtheria, Tb., ice, milk and water received and filed.

June 16. Special meeting in regard to condition of small-pox hospital. \$305.90 would put building in good condition. \$350 appropriated.

July 7. Protest from a number of doctors against six weeks' quarantine, but Board of Health asked to be upheld in this. Formaldehyde machine out of order and Health Officer asked for a new one. Common Council referred the question of garbage disposal back to the Board of Health to be reconsidered. Dr. Curtis, Mr. Russ and Dr. T. P. Bailey,

Health Officer, to report on same. Still many complaints coming in regarding privy vaults.

August 4. Committee on Garbage last reported 1897. Utilizing method promised great economy but now advise incinerator plan. Dr. Curtis, chairman, presented an interesting report.

October 6. Garbage collection specifications presented. Resolution adopted recommending making contract with Albany Reduction Company: affirmative 3, negative 2.

October 13. Additional discussion regarding garbage disposal.

December 29. Death rate 19.85. Typhoid has gradually increased—twenty more cases than in 1898. Many cases due to Albany water, the majority using well, not city filtered, water. Many cases of mild scarlet fever. Diphtheria quite prevalent, with fifty-four deaths. No deaths after using antitoxin. First reference made to use of antitoxin. No smallpox since 1894.

Two hundred and forty-four deaths from Tb. Sale of potable waters licensed.

Marriages.....	505
Births.....	1315
Deaths.....	1968

Six hundred and thirty-four drain tests made. Dr. Elting, at Bender Laboratory, made city examinations for 1898. Dr. Curtis presented a splendid, interesting report on his services with the Board of Health from 1888.

1900. New records begin with this year; Health, Police and Fire Departments now under Department of Public Safety.

James H. Blessing elected Mayor; William G. Lewi, City Physician.

Board of Health: Joseph D. Craig, Health Officer; William G. Van Zandt, Deputy; Maurice B. Flinn, Clerk; Chief Inspector of Plumbing, William Brownlow; Sanitary Inspectors, Charles Delaney, David W. Martin, and Daniel A. Wasserbach; Inspector, Contagious Diseases, Dr. Fred, N. Guyer; Health Physicians, Dr. Michael D. Stevenson, 1st district; Dr. Wilfred S. Hale, 2d district; Dr. E. H.

Rider, 3d district; Dr. W. I. Goewey, 4th district; Dr. Robert H. Tedford, 5th district.

Births.....	1056
Deaths.....	1490
Deaths in public institutions.....	266
Deaths in Albany Hospital.....	31
Marriages.....	455

It was noted that a greater number of deaths occurred in extremes of age—youngest and oldest. Death rate for ten months, 17.55. Three times the number of investigations were made. Antitoxin in units was given physicians for charity cases—diphtheria, 82,500. Measles only disease that increased. Cases of Tb. remained about the same. Quarantine must be more vigorous. There is an increase of Tb. in other cities, in Albany less. Typhoid fever gradually diminished, following use of water from Albany Filtration Plant. It was believed some cases were due to milk infection.

August 11. Dr. Hale, Health Physician, 2d district, notified Board of suspected case of smallpox at 3 Spruce Street, and quarantined within an hour. Patient dissipated, suffering from Bright's disease, and died, August 22, from uremia. Cost of quarantine and care of case, \$100.

1901. No change in the Board of Health.

United Traction strike from May 7 to 18.

Death rate.....	17.59
Less non-residents.....	16.14

Record lowest on file. Decrease in typhoid and diphtheria, owing to increased use of antitoxin. Usual number of vaccination cases of typhoid. With the exception of influenza, in January, very small death rate from contagious or communicable diseases. City unfortunate in having a large number of smallpox cases, which appeared in November, at its height in April, and disappeared in August. Due to compulsory vaccination, only one case in public schools. In other schools, where not compulsory, a large number of cases. At Lathrop Memorial Home, with only one or two exceptions, where patients had been vaccinated, entire institution generally infected. Sixty per cent

of cases never vaccinated; twenty-six per cent only once in infancy.

Bertillon system in classifying deaths introduced in Board of Health. Complete record books, also of deaths in institutions and burials in cemeteries. Contagious disease report of work at Bender Laboratory. Removal of dead animals; market and milk inspection, also plumbing now provided. Books kept up giving number, and this year first made basis for annual statistics report. Records now much more valuable. Twenty-four cases held at smallpox hospital. Eight relatives taken there for observation. Still the same necessity for contagious disease hospital. Large increase in number of cultures for diagnosis at Bender Laboratory. This examination practically universal throughout city. Antitoxin units distributed to doctors, 54,000. Collecting system for obtaining information regarding contagious diseases, of a year ago, continued with good effect.

SAMPLE

Albany, N. Y., ——— 19—

Dear Dr.:

A case of diphtheria at No. — St., Rep. by you on — has been quarantined by this Dept. Your diagnosis confirmed by culture taken at Bender Laboratory. As you have a thorough knowledge of patient and surroundings the house quarantine will be released upon the return, duly signed, of the certificate on accompanying post card. If for any reason you cease attendance upon case, or do not care to sign card, kindly notify Dept.

Respy. yours,

JOSEPH D. CRAIG,
Health Officer.

REPLY

Dept. Health, Albany, N. Y.

Case of diphtheria reported by me at No. — St. on ——— 19—, has completely recovered. A final culture from infected membrane of patient has been made at Bend. Lab. and pronounced free from diphth. bacilli. There is no other case in the family. In my opinion there is no danger to public health and therefore request quar. be released and premises fumigated. Antitoxin has been used.

-----M. D.

No special change in typhoid condition during past year. Large proportion of cases yet imported from other towns.

Usual number of vacation typhoids. Need of contagious hospital again emphasized.

1902. Charles H. Gaus elected Mayor, serving until 1909.

Bureau of Health: Joseph D. Craig, Health Officer; Arthur Sautter, Deputy; Wm. G. Lewi, City Physician; William G. Van Zandt, Registrar; Ralph C. Kimmey, Clerk; William Brownlow, Chief Inspector of Plumbing; William Smith, Assistant Inspector of Plumbing; Francis J. Garvin, Sanitary Inspector; David Martin, Sanitary Inspector; Daniel A. Wasserbach, Sanitary Inspector; Fred N. Guyer, Inspector, Contagious Diseases.

Albany continues a healthy city. Death rate 15.91. One hundred and sixty-eight less deaths than in 1901. Improvement in water supply, antitoxin for diphtheria, vigorous quarantine for contagious diseases maintained, and fumigations made. Effectual cleaning of streets some of the factors in improved sanitary condition. First smallpox case in a traveling printer from Massachusetts. Forty thousand dollars appropriated for contagious disease hospital. Plans drawn. City needs systematic garbage collection and disposal of all kinds of waste. Many factories used soft coal, on account of strike in anthracite coal regions. Unfortunately, there is not a more vigorous effort made to prevent spread of Tb. Dr. Blumer made autopsy examinations in several smallpox cases. At one time nearly two hundred people in quarantine fed by city, making extra expense of \$740.00. Vaccine, \$425.95.

1903. All officers of Board of Health same as 1902. Deaths from insanitary conditions decidedly diminished past year. One hundred cases of scarlet fever. Smallpox again, but not so severe. Private alleys badly paved, with accumulated filth more serious menace to health than public streets under same circumstances. Anthracite coal generally resumed for manufacturing purposes. Subdivision of markets and milk system devised for regular inspection of both. Many inquiries regarding statistics on typhoid fever and full copies of records sent to inquirers. Some filing system needed for water supply. Principal cities inquiring

are Hartford, Pittston, Pa., Grand Rapids, Mich.; Youngstown, Ohio, and Ithaca, N. Y. Efforts being made to execute labor law regarding mercantile establishments. Necessary books and papers prepared and copies of law printed and furnished mercantile establishments. Increase of 136 in births. Case of rabies—dog sent to Bender Laboratory. Children bitten treated, and dogs bitten under observation two months, then destroyed. Eight deaths from measles. Twenty-three cases Tb. reported against nine last year.

1904. Joseph H. Blatner, M. D., City Physician. Other health officers same as 1902-1903. Thirty-two more deaths than 1903, but not due to contagious or unavoidable disease. Death rate 18.53, less non-resident deaths, 17.22.

More marked increase of endocarditis, atheroma, acute and chronic bronchitis, pneumonia, diarrhea and enteritis, intestinal obstruction and peritonitis, chronic Bright's disease, and accidental drowning. Marked decrease in convulsions in children, tetanus, organic diseases of the heart, cirrhosis of liver, albuminuria of pregnancy and accidents of various kinds.

Steady increase in pneumonia last four years:

1901.....	105 cases
1902.....	110 cases
1903.....	147 cases
1904.....	150 cases

Each year a diminished number of cases of contagious diseases. Ten years ago deaths from Tb. were 300, this year 203. Increased number of deaths in institutions as more patients come to hospitals for treatment. Three cases of smallpox—one in penitentiary—without spreading and at minimum cost to city. Records of Health Bureau kept with care and up to date. Contagious disease hospital not yet completed. Smallpox hospital plans now ready. City's need of garbage collection again emphasized. Milk tests, 194. One hundred eighty-four up to standard, ten below.

(To be continued)

THE PHYSICAL QUALITIES OF RADIUM ITS APPLICATION AND ITS POSSIBILITIES IN THE TREATMENT OF CANCER

*Delivered, by invitation, before the Schenectady County Medical
Society, November 8, 1921*

By D. C. MORIARTA, Ph.G., M.D., F.A.C.S.

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Mr. President, Ladies and Gentlemen:

Your committee has asked me to speak on the physical qualities of radium, its application, and its possibilities in the treatment of cancer. Time limits what I have to say on these most important points, but every practitioner, who treats or advises patients having malignancies, may well possess an unbiased knowledge of the action and relative value of radium.

Therapeutic radium has had a stormy time, ever since it was first given to the professional world; and even now, doubt and prejudice are very general in the face of impartial reports of its value both from radium institutes and from eminent clinicians.

I believe the most unfortunate factor in the history of radium is that it was heralded as a "cancer cure" before it had been sufficiently tried. It did not prove to be a specific for cancer, and, more than this, because of lack of experience in its use, it caused unnecessary morbidity and mortality. Further, so much has been said in the secular press of its marvelous powers and miraculous cures, that doubt arises in the minds of many as to whether it is not a remedy that is being exploited by quacks for business purposes, instead of really belonging to the professional armamentarium.

It is, however, an invaluable therapeutic measure, doing that which is impossible for any other remedy, though we must differentiate its field, or fields, of usefulness. An appendectomy is recognized as a correct procedure in appendicitis, as it is also for the surgeon to raise a depressed fracture of the skull. Yet either may fail of their purpose, and in the more advanced or desperate cases probably will

fail; yet each is a definite, necessary and accepted measure, and neither the procedure nor the surgeon is discredited because of their failure; and radium has a right to the same consideration.

Radium is a metallic element and unites with mineral acids to form salts. It is chemically allied to barium and is estimated to be a million times more active than uranium, its parent body. It is the leading element in the radio-active group, whose peculiarity is atomic instability; in these bodies there is a continuous transformation of one atom into another; further, so far as known there is no force that can increase, diminish, or prevent this transformation. In the case of radium, one atom of radium breaks up into *A* rays and emanation; an atom of emanation breaks into *A* rays and active deposit; and active deposit, in its turn, into *Alpha Beta* and *Gamma* rays; this change is uniform and without cessation.

These rays exhibit striking differences one from the other. Technically speaking, *Alpha* rays are not rays at all, but are positively charged atoms of helium; *Beta* rays, also, are not really rays, but are negatively charged streams of electrons; and the *Gamma* rays are not particulate matter, but are vibrations of ether, similar to ordinary light. Physiologically, each radium ray of the same type has a constant and definite power of penetration peculiar to its kind. The intensity of the rays depends upon their quantity, that is on the amount of radium, or radium emanation employed. Hence their action on cell life is governed by the quality and quantity of the rays used. These rays do not possess an affinity for cancer cells, but act on all cell life; healthy cells possess from three to seven times the resistance of diseased cells, which is the reason why they are not destroyed when treating the cancer cell.

The practical application and control of these rays in therapy is simple. Commercially, radium salts come to us for use in glass containers, in hollow steel needles and in flat varnish applicators; when radium emanation is used, it is contained in capillary glass tubes. From the first three forms of application, the rays are constant. The *Alpha* rays

are absorbed by the walls of the container; the *Beta* rays are destructive in character, that is they will act on the skin and produce irritation, varying from a simple redness to a deep ulceration, but they are not of deep penetration. For the control of these rays, we employ various screens which absorb some or all of them as may suit our case. The *Gamma* rays remain after the *Beta* rays are screened out, are not often destructive, and possess a greater penetrating power.

Indications for the use of radium, in malignant or benign cases, are not universally agreed upon. Theoretically, when one possesses the adequate amount of radium, can estimate the character of the growth, its size and distance from the surface, and knows how to screen his radium so that he will have the required rays, the outcome should be a definite proposition. Practically, however, this is not the case, as the application of radium is an art, rather than an exact science.

The quantity of radium necessary, in a given case, to produce a lethal effect on the cancer cell, and the determination whether radium rays, in infinitesimal quantities, ever stimulate cancer growth, as has been alleged, are important factors for our determination.

When radium salts are used, the rays are constant and uniform in penetration and intensity; if a quantity of from five to 1000 milligrams of radium element is employed, for a period of from one half hour to twenty-four hours, it represents a large quantity of rays for a short time.

If radium emanation is used, it is placed in capillary glass tubes, in quantities of from one to three millicuries, which are buried in the tissues indefinitely; usually, in such use, the *Beta* rays are not screened out. The life of the emanation is about thirty days, one half of it being used up in three and eight-tenths days, and the other half in the next twenty-four days. It is apparent that the intensity must gradually diminish beyond our estimation therapeutically. This method is styled "a small quantity for a long time." If this infinitesimal intensity is lethal in its effect on the cancer cell, it would positively contradict, or, at least, does so in

my judgment, the teaching that the rays which are not absorbed will ever stimulate the growth of cancer.

Two years ago, the operator who possessed a gram of radium, positively stated that one working with from fifty to 100 milligrams might do more harm than good, because stimulation of the diseased cells would occur beyond the point where the rays are effective. At present, the same worker uses several tubes of radium emanation, containing one or two millicuries each, for the same object. If this latter method is effective, it positively negates the danger or possibility of stimulating the cancer cells with radium rays, as I have just said.

According to the reports of radium workers, each method has its field.

How does radium affect, or bring about changes, in pathological tissues?

Maloine of Paris writes: "The radium rays, acting on neoplasm, cause retardation of cell growth, a destruction of the cells, and, in some malignant cells, a change which leads to the cells becoming normal."

Schmitz of Chicago has proved by pathological specimens, from a large number of cases, from his own clinic, that in cancer of the cervix uteri changes commence almost immediately after the radium has been applied; and that in a brief period the cancer cells have been generally destroyed. The changes consist in an immediate degeneration of the cancer cell, thereby causing a cessation of mitosis. This traumatic action is followed by a leucocytic and lymphocytic infiltration, resulting in connective tissue formation.

Colwell and Russ in their work, "X-ray, Radium and the Living Cell," have this to say:

"A considerable amount of evidence has accumulated, to show that not only does one variety of cell react in a different degree to another, when exposed to the same type and intensity of radiation, but that a single cell will exhibit a widely differing degree of reaction, according to the particular phase of its life cycle in which it happens to be at the time it is irradiated. We may instance the fact that certain ova have been found to be nearly eight times as vulnerable

to *Beta* rays, when they are in active state of division, as when they are in a resting stage. Facts of this kind indicate one of the difficulties of quantitative investigation upon living tissues; for in almost any large collection of cells, every phase of the life-cycle will be represented, each with its own degree of susceptibility. It also suggests, without however proving, that the differences which have been shown to exist between the effect of intense radiation acting for a short time, and that of weak radiation acting for a correspondingly longer time, may to some extent be associated with the varying susceptibility of the cell during its development to maturity. Physical research has shown that the absorption of different types of rays by metallic screens is a highly complicated process, and in all probability absorption by living tissues is a phenomenon of no less complexity."

I have now come to what is really the important query of your committee in asking me to speak on this subject, and that is, "What are its (radium) possibilities in the treatment of cancer?" As a foreword to the giving to you of my views on this point, I wish to state that it is most difficult to visualize correctly the therapeutic possibilities of a great force like radium, until after its use has been reduced to a definite science.

Empirically, we find ourselves in the midst of many unusual successes which create enthusiasm, and the hope that eventually radium will prove to be the long-sought specific for cancer; and, in spite of the occasional failure, the more I see of the action of radium, the more convinced I am that when the last word has been said for it, we will have a cancer cure. At present, however, its clinical field is not definitely defined. Every worker with radium is essentially a pioneer. The reports from radium institutes, and from individual workers, are not specifically helpful, as they give generalities instead of particulars.

From our personal experience we are unable to promise our cancer patients a clinical cure with radium. Not that we do not observe many clinical cures in our work, but because we have a percentage of failures under seemingly identical conditions, which we cannot interpret. Generally

speaking, we know that radium rays are constant and uniform in quantity; we also know something of their qualities and effect of the different rays, and we also know the cancer cell microscopically. Obviously, however, we do not know the cell physically, in relation to its resistance to the action of radium. Clinically our cases are of all stages of pathology, from simple localized growths to widely disseminated infiltration in neighboring tissues. While all are malignant, there is a great clinical difference in their virulency and resistance. The results of treatment in the individual case do not parallel those in a previous similar one. So it must be apparent to you that, as I have said, the therapeutic application of radium is a complex art, rather than a definite science.

Why cancer cells are destroyed in one instance by an infinitesimal quantity of radium, used at a distance many times greater than that at which we are told by physicists the rays are effective, while in another instance the cells seem to be practically immune, is beyond my comprehension. To show how unexplainable this is, permit me to refer to an experience in my early work.

A degenerating fibroid, estimated weight thirty pounds, and a carcinomatous uterus, estimated weight eight pounds, were treated with twenty-five milligrams of radium element, and both conditions simply melted away. In the first instance the rays were effective for a distance of forty centimeters, and in the other for twenty centimeters. Later in my work I met three cases of primary carcinoma of the labia. I saw them early; the condition in each case was accessible. I used 100 milligrams, applied it directly on the diseased tissue, without effect.

A word concerning the professional attitude towards radium. Patients and physicians alike expect a cure from the use of radium in advanced stages of the disease, when only palliation and prolongation of life are possible. My own experience permits me to say that radium is not at present a specific for cancer, although it occasionally is a specific in an individual case. It is my observation that it apparently does not matter how positively or how frequently

radium workers state that it is not a cancer cure, yet the practitioner who meets an advanced case of cancer for the first time, or who has allowed a case to become so, before turning to radium, expects a cure; or at all events he will discredit radium if a cure does not follow its use.

Relief of symptoms, such as cessation of odor, discharge, hemorrhage and pain, with a prolongation of life, do not seem at all to satisfy the physician referring the case, or the family of the victim. Within a month one of my colleagues told me, with some force as well as sarcasm, that he had that day signed the death certificate of one of my radium "cures" (?) Upon looking at my notes on the case, I found that it was considered an inoperable uterine carcinoma, that a clinical cure had resulted from the use of radium, and that the patient had lived for three and one half years comfortably, free from disagreeable symptoms until the beginning of the end.

However, the one important point, clinically, in the treatment of cancer by radium, is when, if ever, is its use justified as the remedy of choice in *primary* cancerous conditions. Similarly, if surgeons could always determine when a case of cancer was localized, they would not operate when it would be conservative to the life of the patient to leave it undisturbed.

In my own work, I place all cases in one of two classifications. The first group consists of those cases in which I believe, unqualifiedly, that radium is the remedy of choice, and is as follows:

As a prophylactic adjunct to surgery,
In combination with surgery and X-ray,
In unwarrantable surgical risks,
When the patient will *positively* not accept surgery,
In epithelioma, senile keratitis, rodent 'cer about the
face and eyelids,
In T. B. glands, regardless of size,
In tubercular ulceration of the vocal cords,
In lympho-sarcoma,
In metrorrhagia not due to fibroids or cancer of the body
of the uterus, in women past forty,

In cancer of the vaginal walls,
In cancer of the tonsil,
In cases where X-ray has failed,
In the *non*-malignant pathological tonsil.

The second group is made up of those cases in which the primary use of radium is open to discussion, or denied, unless the patient is beyond other measures. They are as follows:

Fibroids of the uterus,
Bleeding in young women,
Cancer of the breast,
Cancer of the uterine cervix,
Cancer of the mouth,
Cancer of the prostate,
Cancer of the urinary bladder,
Epithelioma of the lip,
Cancer of the body of the uterus.

I have placed in this second class, cancer of the uterine cervix, cancer of the breast, uterine fibroids, bleeding in young women, and epithelioma of the lip—contrary to the opinion of competent authorities—because my experience does not uniformly parallel the reported successes of other workers who use it as a primary measure in these fields.

There are many interesting features for discussion in both groups. I will speak particularly of one condition, lymphatic metastases, which is very common, and which will serve to emphasize an important point: epithelioma of the lip. This is a simple condition if taken early, but disastrous if glandular involvement has occurred.

Experience certainly justifies the conclusion that cutting out the center of a spreading cancerous lesion does not tend to a cure. In fact the disease often appears to grow more actively as a result of the operation, which, to my mind positively forbids biopsy as a routine practice for diagnosis. A cure is never obtained unless the disease in the lymphatics is completely eradicated. The submental lymphatics drain the lower lip and the chin, while the submaxillary receive the lymphatics of the lateral portion. There is also an anastomosis between the lymphatics which drain both sides

of the lower lip. These statements are made only to emphasize the fact that a knowledge of the course and condition pathologically of the lymphatics is important in each case, regardless of the region.

I have said that radium will do at times, in the individual case, what no other remedy could do. In this connection I will briefly report three cases, selected simply to emphasize the fact that radium is an effective therapeutic measure in affording relief in the individual case.

Mrs. S. Post-operative mass, extending four inches above the symphysis, of three months' development. Laboratory report at the time of operation showed the organs to be carcinomatous. With the use of radium externally the growth receded and the patient is well after two and one half years.

Mr. C. Post-operative melano-sarcoma of the right shoulder joint, of a size and character that one could not visualize from a description. Radium used externally with an improvement in all the symptoms. Condition became normal in about three months. Now, after three years, it is impossible to tell the joints apart except for the scars of the operation.

Mrs. O. Post-operative condition, deep ulceration, 3 cms. wide, extending from one cm. from the meatus backward in the inferior wall of the bladder. Sphincters did not functionate so there was constant dribbling of the urine and the patient was in continuous pain. Radium was applied. After three weeks the pain was gone, ulceration healed, and the urine voided once in four hours.

As a palliative in late cancer cases, no words can adequately convey the benefits and advantages to the patient from its use. They must be observed personally in order to be appreciated or relieved as its results are often marvelous. It is easy of application, does not mutilate, has no contraindications, and can be used regardless of the physical status of the patient. It controls pain, hemorrhage, discharge, and odor from necrosing growths, with an occasional clinical cure. On the one hand, we have the lingering, long-drawn-out condition, where there is open necrosis with its pain and suffering, accompanied by discharge, with its unbearable odor, practically ostracizing the patient from family and friends; not seldom the patient becomes a morphine addict, only waiting miserably for the end. On the other hand, with the use of radium, come cheer, hope and comfort;

radium controls pain, hemorrhage, discharge and odor from the necrosing growth, and as a consequence improves the social status of the patient to a degree difficult to conceive unless it has been seen.

Notwithstanding we read in the reports of radium workers that a particular case is hopeless and is therefore denied radium. I believe, from my observation, that this is a wrong position to take. I am sure there is no one experienced with radium who has not observed an occasional case, similar to those mentioned, that he thought absolutely hopeless, improve with its use; and I know of no way in which to determine in advance the one that may do so. I believe it is all wrong to attempt to measure the value of radium as a therapeutic remedy by a time period, as surgeons have elected to do in their work, rather than by the comfort and benefit given the individual case. Relief, it matters not how little, to a hopeless cancer victim is most welcome. So I would emphasize my conviction that no cancer case is so desperate, and no post-operative condition so hopeless that radium should be denied as a palliative measure.

Prejudice and enthusiasm matter little in the last analysis. The scientific clinician, freed from both, can alone solve the problem of how it is best to treat his malignancies. And I do not believe he will think of his procedures to this end as of necessity a "cancer cure."

BIBLIOGRAPHY

COLWELL and RUSS: "Radium, X-ray and the Living Cell."

COX: "Beyond the Atom."

MALOINE: Paris, 1912.

MORIARTA, D. C.: Radium—A Palliative, *Obstetrics and Gynaecology*, September, 1916.

SCHMITZ, Henry: Chicago, Personal communication.

VIOL: Radium, Volume I.

A NOTE ON CORONARY THROMBOSIS

By GEORGE BLUMER, M. D.

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In the *ANNALS* for April, 1920, Whittington Gorham published a very interesting report on the significance of transient localized pericarditis in coronary thrombosis. In his article he brought together and summarized the existing knowledge on that subject. It is therefore unnecessary to go into details regarding the clinical features of the condition. I merely wish to put on record the histories of two patients recently observed in whom the disease showed some minor variations from the usual picture.

CASE I

An American, aged 61, an executive officer of a corporation, was seen with Dr. C. J. Foote in December, 1921.

The only point of importance in his family history was that his father had angina pectoris for years and died of apoplexy and that several other relatives had angina pectoris.

He had inflammatory rheumatism as a young man but his history was otherwise almost negative. He smoked six to eight cigars a day. He had had hypertension with slight heart hypertrophy since 1916 and had had a trace of albumen in his urine since that time. He had never had an attack of angina pectoris, but for some months had noticed a sense of pressure behind the sternum on exertion.

Late in the afternoon before I saw him he had a sudden attack of substernal pain while walking on the street. He was within a few minutes walk of his club and rested there ten or fifteen minutes, after which the pain subsided. In the evening after supper the pain returned and the patient vomited. The pain was so severe that one sixth of a grain of sulphate of morphine repeated in an hour had no effect. It was located under the sternum and did not radiate either to the back or arms. There was very little dyspnoea with the attack. The patient vomited only twice.

He was seen about 4 a.m., twelve hours from the onset of the illness. At this time physical examination showed a well nourished man, not especially pale, slightly cyanotic. His teeth were in bad condition and his breath foul. His tongue was coated. His pulse was one hundred to the minute, medium volume and a trifle irregular in force and rhythm. The peripheral vessels showed no definite thickening. The blood pressure was 200 130. The lungs were somewhat hyperresonant and masked the cardiac dullness. The heart impulse was palpable in the fifth interspace just outside the left nipple line. The sounds were clear but rather feeble.

The second aortic was not especially accentuated. Under the lower end of the sternum opposite the fifth costal cartilage was a perfectly definite soft to and fro pericardial friction rub over an area four centimeters in diameter. The liver was palpable at the costal margin. The spleen was not felt. The reflexes were normal.

The patient rallied from the acute attack and did fairly well for ten days. He developed slight fever, his pain and friction rub disappeared and he was nervous and restless. On the tenth day he developed an arthritis of the right wrist and right ankle and was given salicylates in small doses. The next day he had a sudden circulatory collapse.

Seen again with Dr. Foote, he was almost pulseless at the wrist, bathed in sweat and covered with a patchy erythematous rash. His heart sounds were very feeble and he was somewhat delirious. He rallied under stimulation and digitalis, but the next day developed signs of consolidation at the base of his left lung with purulent expectoration. After four days his signs gradually cleared up so that he was sitting up and reading within three weeks of his original attack though he had one brief attack of acute pulmonary edema during this period.

Eleven weeks after the original attack the patient suddenly developed thick speech and vomiting. There was no change in the pulse, respiration or temperature. He was drowsy but perfectly conscious. There was an abnormal sensation of fullness in the head but no headache.

Seen again with Dr. Foote he showed conjugate deviation of the eyes to the right and slight lateral nystagmus. There was no aphasia though the speech was thick. The tongue protruded straight. The ocular muscles failed to co-ordinate though it was impossible on account of the patient's condition to decide on any definite paralysis. The heart was regular and the sounds of good quality. There was an unusually wide heaving impulse measuring five by ten centimeters just above and to the right of the apex. No pericardial rub was detected. The lungs and abdomen were negative. There were no changes in the tendon reflexes and no abnormal plantar reflexes. No sensory changes could be detected. He continued to vomit and the next day showed paralysis of the right internal rectus and possibly a hemianopsia. Later he developed difficulty in deglutition and left sided facial weakness. He became more somnolent, his lungs filled up, his circulation gradually failed and he died about forty-eight hours after his cerebral accident.

CASE II

An American, aged 55, a teacher, was seen with Dr. S. J. Maher, in March, 1922.

The patient's family history was negative. He had an attack of inflammatory rheumatism at twenty-nine and pneumonia at fifty. As a student he was told that he had an enlarged heart but was permitted rather strenuous exercise. He has had lumbago several times. He smoked ten or twelve cigarettes a day seldom entirely finishing a cigarette. He never had anginal attacks.

March 2nd, he had chilly sensations with cold perspiration in the afternoon. This was followed by pain between the shoulders and later substernal pain which he described to his wife as "the most intense pain he had ever experienced." This persisted till the middle of the night when he vomited and obtained some relief. During the attack of pain the patient was very dyspnoic and the pain was increased by respiration. He was very pale and had definite angina animi. He was very restless, quite talkative and somewhat cyanotic.

When first seen, about twenty-four hours after the onset of the attack, he was propped up in bed and distinctly dyspnoic. The lips and nails were moderately cyanotic. The pulse was very small, very irregular, very rapid and exceedingly compressible. The systolic blood pressure was ninety, the diastolic could not be determined. The lungs showed scattered moist râles at both bases behind. The heart impulse was feeble and diffuse. All over the body of the heart to the left of the median line was a loud, scraping, to and fro pericardial friction rub. No endocardial murmurs were heard. The heart sounds were feeble. The abdomen was slightly distended by intestinal tympanites. The liver was palpable at the costal margin. There was no edema of the extremities.

The following morning at 3:30 o'clock he had a serious attack of circulatory failure, became unconscious and almost pulseless but rallied under stimulation. Seen at 8:30 a.m., his color was bad, he showed a yellowish pallor, and was moderately cyanotic. He appeared anxious and dyspnoic. The pain had disappeared. The pulse was very feeble and irregular. The lung signs were unchanged. The loud pericardial friction rub had almost entirely disappeared but friction could still be heard very faintly over the lower sternum. The heart sounds were very feeble and irregular. The abdomen was more distended, tympanitic. The liver and spleen were not enlarged.

The subsequent history was obtained from Dr. S. J. Maher. The patient improved somewhat after the third day. His pulse became steadier and could be counted at the wrist at 140. The systolic blood pressure rose to ninety-five. The temperature was subnormal from the start, seldom going above F. 97 deg. After eight days marked signs of congestion developed at the bases of both lungs, the temperature rose to F. 102 deg., and the abdomen became more distended and showed signs of fluid. The patient was stuporous after the end of the first week and died on the eleventh day after the original attack. Death came rather suddenly and was preceded by irregularity of the pupils, convergent strabismus, and irregular breathing, evidently due to a cerebral embolus.

It will be noted that each of these patients presented a combination of stenocardia with localized transitory pericarditis and cardiac decompensation. In Case I fever also was present, completing the usual cardinal signs. Case II was marked by a *persistent subnormal temperature* which did not

disappear until marked pulmonary complications occurred.

In the first patient the following points were of interest: (1) the unusually early appearance of the pericardial friction rub which was present within twelve hours of the onset of the attack; (2) the occurrence of an arthritis during convalescence with temporary circulatory collapse and an extensive erythematous rash following the administration of a small quantity of salicylate; (3) the occurrence of a brief attack of acute pulmonary oedema during convalescence; (4) the evidence of a probable aneurysm of the left ventricle, and (5) the termination by cerebral embolism, presumably originating in a thrombus in the left ventricle secondary to the degenerative changes in the heart-wall.

In the second patient the features of interest were: (1) the very wide area of pericarditis which covered at least half of the heart's anterior surface but which almost disappeared within twelve hours; (2) the persistent subnormal temperature, and (3) the termination by a cerebral embolism just as in Case I.

It is to be regretted that an autopsy was not obtained on either patient but the symptoms and signs were so classical that there can hardly be a doubt as to the correctness of the diagnosis.

PARATHYROID LESIONS IN PARALYSIS AGITANS

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Pathological Laboratory of the Albany Hospital*

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Our present knowledge of parathyroid function consists of two main facts: (1) the parathyroids are necessary organs, their absence being incompatible with life, and (2) their total removal is followed by a certain train of symptoms, the most conspicuous of which is tetany. In former years, at least, a disfunction or lack of function of the parathyroids was thought by some to play a part in the production of the clinical condition paralysis agitans. Lately with the demonstration of lesions in the corpus striatum in this disease the parathyroid hypothesis has been discarded, at least such is the impression one gathers from the recent textbooks of medicine.

The writer has recently had the opportunity of studying the tissues of a typical case of paralysis agitans which came to necropsy at the Albany Hospital, and with the kind permission of Dr. J. M. Mosher a short resumé of the clinical findings is given.

The patient, Case No. 5879, Pavilion F Records, was a white woman, American, aged fifty-six years. She had been subject to attacks of profound melancholia about every five years for the last thirty years. Paralysis agitans developed during the last eighteen months and was characterized by very pronounced muscular rigidity, tremor and flexor attitude. The rigidity amounted almost to fixation. There was a marked tendency toward retropulsion. Her mental attitude was dull and stolid. She was very constipated. During her stay in the hospital diarrhea developed, with fever, and death occurred with signs of bronchopneumonia.

Necropsy was performed three hours post-mortem. The pathological findings were: hemorrhagic pulmonary infarcts with thrombosis of branches of the pulmonary artery; acute bronchopneumonia; slight chronic thyroiditis; arteriosclerosis; fatty degeneration and infiltration of the parathyroid glands. Three parathyroid glands were found, two posterior to the upper pole of each lateral lobe of the thyroid and one at the lower pole of the right lobe. What was thought to be a fourth parathyroid gland at the lower pole of the left lobe proved to be aberrant thyroid

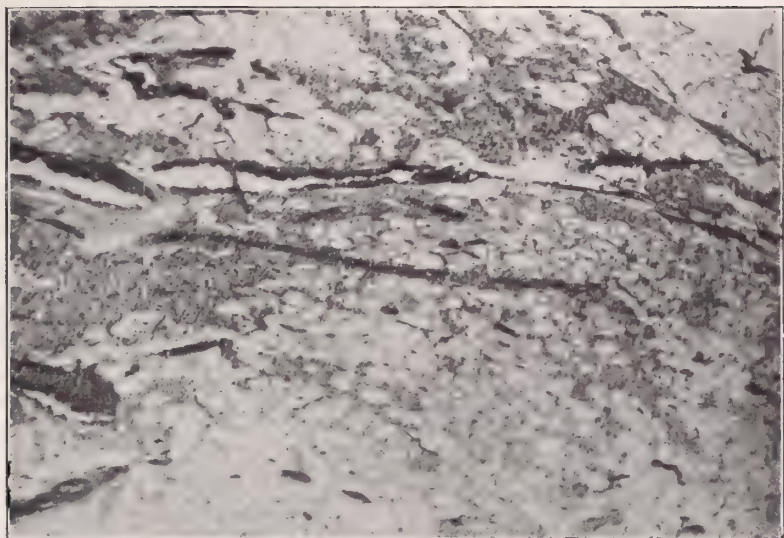


FIG. 1

Low Power Photomicrograph of a Section of a Parathyroid, showing the almost entire replacement of the gland by fat

tissue. It cannot be asserted that all the parathyroid tissue was found. The glands were of approximately the same size, averaging 6×2.5 mms., and brownish red with a faint yellowish tinge.

The histological picture varied somewhat in the three glands but all exhibited essentially the same changes. The routine stain shows very little normal parenchyma, only small groups of the characteristic cells being recognizable. Most of the gland epithelium has been replaced by fat. The parathyroid elements remaining are, as a whole, heavily infiltrated with fat in large and small droplets. In many cells distended with fat the nucleus is but faintly stained or has disappeared altogether. Pyknosis of the nucleus is noted in some cells. Sections of the glands fixed in neutral formalin-bichromate liquid and mordanted in three per cent bichromate for three weeks, were stained for mitochondria with Altmann's anilin-acid fuchsin and counterstained with picric acid. Mitochondria were found in small numbers and in granular form in the best preserved cells but in the cells containing much fat mitochondria were few and very small.

DISCUSSION

It is of course unfortunate that the brain was not permitted to be examined. Perhaps lesions would have been found in the corpus striatum. Assuming that such was the

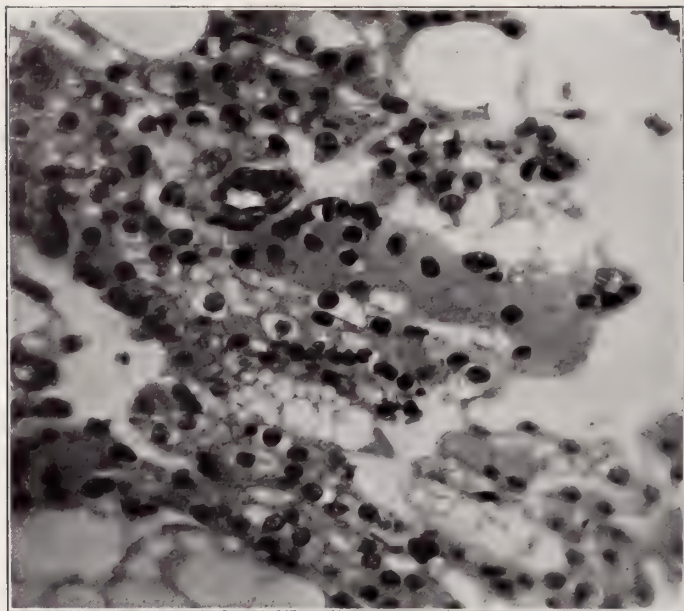


FIG. 2

High Power Photomicrograph of a Field from Fig. 1, showing fatty infiltration of the gland and fatty degeneration of most of the remaining parenchymal cells

case how could the parathyroid changes be reconciled with those in the brain? MacCallum¹ in his experimental work on parathyroidectomized dogs found that degenerative changes were produced in the cerebral ganglion cells, which favored the view that "some unneutralized toxin is responsible for the symptoms following parathyroidectomy." Parathyroid feeding has been reported beneficial in cases of paralysis agitans,² but this observation has not found general acceptance.

So, assuming that a cerebral lesion was present, such as has been commonly found in paralysis agitans, it does not appear unreasonable to the writer to suggest that the lesion in the parathyroid glands may have been the primary factor, at least in this case, in the production of the paralysis agitans through the ensuing degenerative changes in the

corpus striatum. Conversely, considering the patient as having had no characteristic cerebral lesions of the disease, the extreme muscular rigidity would seem sufficient to throw suspicion upon the parathyroids as at least functioning subnormally and to make an examination of them imperative. These glands should be investigated in every fatal case of paralysis agitans, and possibly histological evidence of a physiological disturbance in them would be more frequently detected.

SUMMARY

1. A typical case of paralysis agitans at necropsy showed very marked atrophy and fatty degeneration and infiltration of the parathyroid glands. The brain was not examined.

2. A rational interpretation of the parathyroid changes in the light of the possible presence of a central nervous lesion also, would seem to be that the parathyroid lesions may quite well have been primary and the degenerative changes in the brain secondary. This concept has a sound basis in the experimental work of MacCallum upon parathyroidectomized dogs.

3. The parathyroid glands should be examined in all fatal cases of paralysis agitans, as the muscular rigidity suggests subnormal parathyroid function.

REFERENCES

¹W. G. MACCALLUM: "On the Production of Specific Cytolytic Sera for Thyroid and Parathyroid, with Observations on the Physiology and Pathology of the Parathyroid Gland, especially with relation to Exophthalmic Goitre." *Medical News*, 1903, LXXXIII, 827.

W. G. MACCALLUM and C. F. DAVIDSON: "Further Notes on the Function of the Parathyroid Glands." (Quotes Lanz as having made observations of cerebral lesions in 1894.) *ibid.*, 1905, LXXXVI, 625.

²BERKELEY: *Medical Record*, 1916, XC, 105.

EDITORIALS

Dr. Willis
Gaylord
Tucker

A long generation of students and graduates of the Albany Medical College will have the recollections of their student days stirred afresh as they see the name of Dr. Willis Gaylord Tucker, and all their hearts will be saddened to know that his life here is ended. One may say that he was connected with the College for almost fifty years; first as a student himself, graduating in 1870; then in 1871 he became a teacher of chemistry, becoming the head and responsible instructor of that subject, which he continued to be until 1915 when with others his connection with the College ceased. Besides that, illuminating a part of medical study which in some of our medical courses was treated but lightly, Dr. Tucker in 1881 succeeded Dr. Jacob S. Mosher as Registrar of the College, and this brought him into personal contact with every student for many years, as he held this position to the end save for a year or two at the last when he served as Dean. No one knew the men who gathered here to nibble the rind or dig into the depths of the congeries of ever winding themes which compose a course in Medicine so well as he did. He knew the capacities of their minds, the depth, which not so very infrequently was shallow, of their pockets, their home attachments and their personal dispositions; some of them recall his entering with sympathy into their personal concerns which they brought to him for friendly counsel. No one knew better to whom the Dagget prize for good deportment should go; and the Faculty cannot fail to recall how in his earnest way he took up the defense and became the apologist for one and another who on those nights before Commencement, as outside with palpitating hearts the graduating class were waiting for final verdict, were marked for failure. He knew that some must be denied but it was hardly in his heart to let one go without some good word and plea. Brusque, imperative, nervous of manner, never cynical nor blunt, you always counted on kind judgment,



WILLIS GAYLORD TUCKER

probity, wisdom, good understanding. These personal qualities we like to recall, to trace in the portrait we hang in our memory niche; what we attain other than our friendly contact with associates and in accomplishing common concerns is of secondary value, to fill in as it were the background of our picture.

At the Academy the bent of his mind was toward the natural sciences, further inspired no doubt by his teacher in this direction and later associate, Dr. Mosher, and in the Medical College he had a continuance of his teaching. After the custom of the time he became a student in the office of Dr. James H. Armsby, numbers of students registering there, for Dr. Armsby was a leading member of the faculty. He never intended probably to practice medicine however. His life was devoted to the practice and teaching of chemistry. He was a teacher of it at times in the Albany Academy, the Female Academy, St. Agnes and the High School and the year after graduating he began its teaching in the Medical College. Later he took up this important part of the work of the College of Pharmacy of which he was one of the principal originators. Then when the State Board of Health came into being, in 1880, Dr. Tucker became one of its active workers in chemical analysis, and director of the State laboratory when it was established. In the early years I well recall that there was much to do in the testing of kerosene oil for the presence of the lighter ingredients of gasoline by the flash test, this not then having the precious value which excludes it from illuminating oil today.

Dr. Tucker did a good deal of work in the way of toxicological and other chemical analysis and not infrequently served along with this as expert witness in cases requiring this work. He wrote much on technical subjects and he preserved his productions of this sort in an orderly way and had them recorded for reference. He was a member of various scientific associations.

His useful life in the city of his birth and in the organizations into which he actively incorporated himself ended after a short illness, April 21, at the age of 73. Kindly

memory will preserve it, and not least with the members of the Alumni Association of the Albany Medical College which he chiefly brought into being.

F. C. CURTIS.

The following summary of the activities of his career was presented by Dr. Tucker at the fiftieth anniversary of his graduation, in 1920:

"Willis Gaylord Tucker, Albany, N. Y. Born Albany, October 31, 1849. Assistant Professor of Chemistry Albany Medical College, 1871-1874, and subsequently Lecturer on Materia Medica, Adjunct Professor Materia Medica and Chemistry, Professor Inorganic and Analytical Chemistry, Medical Jurisprudence, and Toxicology, and from 1901 to 1915, Professor of Chemistry and Toxicology. Probably served as a teacher in the college for a longer continuous period than any other teacher who has been connected with the school.

"Registrar of the faculty, 1882-1913, and served longer in this office than any other. Dean of faculty, 1914-1915.

"Co-operated with Henry B. Whitehorne and S. Oscar Myers, members of the graduating class, in the organization of the A. M. C. Alumni Association in 1874 and one of its incorporators. Secretary of the association, 1874-1896; recording secretary, 1886-1897; and president, 1898.

"One of the founders of the Albany College of Pharmacy in 1881. Professor of Chemistry and Toxicology in same, 1881-1918; trustee, 1898 to date; Dean of Faculty, 1883-1918, and Honorary Dean, 1918 to date.

"During various years professor of chemistry in Albany Academy, Albany Female Academy and St. Agnes' School, and professor of chemistry in Albany High School, 1876-1887.

"Analyst State Board of Health of New York, 1881-1891; director State Board of Health Laboratory, 1891-1901; and Director Bureau of Chemistry, N. Y. State Department of Health, 1901-1907.

"Member Board of Medical Examiners, University State of New York, 1882-1891. Member Board of Governors Union University, 1884 to date. Member editorial staff ALBANY MEDICAL ANNALS, 1883-1887, and member alumni committee on publication of same, 1899-1917. Trustee Bender Hygienic Laboratory, 1905-1915.

"Member Medical Societies of the County of Albany and of the State of New York; fellow American Association for the Advancement of Science; member American Chemical Society; member Sigma Xi. Received honorary degree of Ph. G., Albany College of Pharmacy, 1882, and Ph. D., Union, 1882.

"Author of various papers on chemical subjects, chiefly in the direction of sanitary chemistry, food and drug adulteration, water analysis and toxicology, published in various medical and chemical journals and official reports."

CURRENT EVENTS

Edited by WILLIAM P. HOWARD, M. D.

ALBANY DEPARTMENT OF HEALTH

STATISTICS, APRIL, 1922

DEATHS FOR THE MONTH OF APRIL, 1922

Bright's Disease	21	Whooping Cough	0
Apoplexy	21	Scarlet Fever	0
Cancer	15	Typhoid Fever	0
Accidents and Violence	10	Deaths under one year	19
Pneumonia	10	Deaths over 70	43
Broncho-pneumonia	8	Death rate (non-residents	
Tuberculosis	7	included)	18.99
Diarrheal Diseases	2	Death rate (non-residents	
Diphtheria	2	excluded)	16.24
Measles	1	Births	196
Influenza	0	Still Births	4

DIVISION OF COMMUNICABLE DISEASES

Pneumonia	66	German Measles	2
Chickenpox	32	Typhoid Fever	1
Influenza	28	Epidemic Meningitis	1
Whooping-cough	27	Septic Sore Throat	1
Tuberculosis	25	Encephalitis Lethargica	1
Diphtheria and Croup	18	Trachoma	1
Measles	9	Jaundice	1
Scarlet Fever	5	Smallpox	0
Mumps	5		
		Total	223

Number of days quarantine for scarlet fever:

Longest 30 Shortest 30

Number of days quarantine for diphtheria:

Longest 27 Shortest 31

Fumigations:

Rooms 97 Buildings 24

Milk bottles disinfected 638

MISCELLANEOUS

Tuberculosis

Living cases on record April 1, 1922.....	593
Cases reported:	
By card.....	22
Dead cases by certificate.....	3
	— 25
	618
Dead cases previously reported.....	6
Dead cases not previously reported.....	3
Removed.....	11
Died out of town.....	0
Recovered.....	0
Unaccounted for.....	0
	— 20
Living cases on record May 1, 1922.....	598
Total tuberculosis death certificates.....	9
Non-resident deaths.....	2
Resident deaths.....	7

LABORATORY REPORT

Diphtheria

Initial Positive.....	19
Initial Negative.....	208
Release Positive.....	92
Release Negative.....	160
Unsatisfactory.....	5
	—
Total.....	484

Sputum for Tuberculosis

Positive.....	56
Negative.....	134
Unsatisfactory.....	0
	—
Total.....	190

Widals

Positive.....	1
Negative.....	20
Unsatisfactory.....	2
	—
Total.....	23

Meningococcus

Positive.....	0
Negative.....	4
	—
Total.....	4

Wassermann Tests

Positive.....	83
Negative.....	185
Unsatisfactory.....	14
	—

Gonorrhoea Examinations

Positive.....	22
Negative.....	55
	—

Total

Total.....	77
Milk Analyses.....	278
Water Analyses.....	0
Pathological Examinations.....	0
Miscellaneous Examinations.....	3
	—

Total Examinations

Total Examinations.....	1341
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DIVISION OF MARKETS AND MILK

Public market inspections.	0	Inspections of stores selling milk	224
Market inspections.	182	Dairies inspected	52
Fish market inspections.	22	Dairies reinspected.	12
Slaughter house inspections.	0	Milk houses examined.	52
Rendering establishment inspections.	0	Milk cans inspected.	176
Pork packing house inspections	0	Milk cans condemned.	0
Hide house inspections.	0	Complaints investigated.	3
Cows examined.	920	Bacterial counts.	137 Lab
Cows quarantined.	0	Permits issued—peddlers.	217
Cows rejected.	33	Permits issued—store keepers.	224
Milk depots inspected.	24		

THE ALBANY GUILD FOR PUBLIC HEALTH NURSING

FOR MONTH OF APRIL, 1922

1. *Patients.* Old carried from March, 462; new, 234; total, 696; dismissed, 228; carried into May, 468.

2. *Source of Cases.*—Metropolitan Life Insurance, 55; Doctors, 88; nurses, 10; dispensary, 38; family or friends, 34; other sources, 9. Classification of new cases: Medical, 122; surgical, 8; obstetrical, 41; prenatal, 25; tuberculosis, 27; venereal, 11.

3. *Visits.*—Total, 2422. Classified as follows: General nursing, 718; confinements attended, 41; post partum nursing, 340; post natal nursing, 322. Preventive: Prenatal, 131; post natal welfare, 41; post partum welfare, 54; pre school welfare, 103; T. B. (inst. and super.), 96; V. D. (inst. and super.), 16; cardiac, 11; observation and super., 39; other purposes, 510.

4. *Disposition of Cases.*—Recovered, 60; improved, 40; unimproved, 20; to hospital, 30; dead, 9; to other care, 55; T. B., 14; venereal, 0.

ACTIVITIES OF SOCIETIES

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.—The regular monthly meeting of the Medical Society of the County of Albany was held in the Adelphi Club, 134 State Street, Albany, Wednesday, May 10, 1922. The meeting was called to order at 8:30 p.m., by Thomas W. Jenkins, M. D., president.

ORDER OF BUSINESS.—Reading of the minutes of the March meeting; reports of officers and committees; election of members; unfinished business; new business.

SCIENTIFIC PROGRAM.—"A Case of Pyometrium," by Dr. Ellis Kellert; "The Role of Bacteria in the Causation of Gall Stones," by Dr. Joseph A. Pessolano. A luncheon was served after the meeting.

ALUMNI NOTES

Edited by CHARLES C. DURYEE, M. D.

1882

DR. WALLACE E. DEITZ, of Berne, Albany County, who has been seriously ill for some months, is slowly convalescing at Slingerlands, N. Y. Besides attending to the demands of a large country practice, Dr. Deitz has rendered efficient service as health officer for many years to the towns of Berne and Knox.

1887

DR. JOHN A. HEATLY, of Schenectady, has removed his offices to the new Medical Arts Building on Barrett Street. Dr. Heatly devotes his time to diseases of the eye, ear, nose and throat.

1889

★ The death of DR. WALTER GRAHAM MURPHY, which occurred on April 16, 1922, after a few days' illness from pneumonia, was a great shock to his professional associates, his many patients and the city of Hartford in general, where his high character and attainments had won for him a place of esteem.

Dr. Murphy was born in Albany, November 13, 1869. He was educated in the public schools of Albany and St. Paul's school of Salem, N. Y. After graduating from the Albany Medical College he served for a time at the Hudson River State Hospital, and eighteen months as interne at the Albany Hospital. He moved to Hartford in 1913 after practicing in Granby and East Hartford for twenty years, taking pediatrics as a specialty, and at the time of his death he was assistant attending physician of the department of children at the Hartford Hospital.

He was one of the founders of the Babies' Hospital of Hartford, and always took a keen interest in its welfare until the time of his death. He was President of the Hartford Medical Society for the year 1921.

In the year 1918 Dr. Murphy went to France with the rank of Captain, being detailed to investigate the condition of French children in St. Nazaire, Lyon, Genover, St. Eliene and other towns. Later he was given charge of eight dispensaries in Paris, where undernourished children were cared for. He was in Paris during the bombardment of that city by the "Big Bertha" and on one occasion had a very narrow escape from one of its monster shells. Last year he was elected secretary of a preliminary organization of the American Red Cross Physicians who served overseas.

Dr. Murphy leaves a wife who was Miss Henrietta Broughton, of Salem, N. Y., three daughters and two grand-daughters. He was a member of the Trinity Episcopal Church of Hartford, and of the Crescent Lodge, I.O.O.F., of East Hartford.

The *Hartford Daily Times*, in an editorial on the day following his death, forms a true estimate of him as a physician and citizen, writing as follows:

"Hartford suffers a real loss in the death of Dr. Walter G. Murphy, a man of great ability in his chosen field and a physician rarely generous in giving his talents and his services for the aid of the unfortunate. Dr. Murphy was not merely a trusted and eminently successful specialist in children's diseases; he was a consistent worker for better living conditions for the children of the poor and a better chance for life for the unfortunate. The Babies' Hospital, which formerly maintained outdoor quarters for sick babies of the congested district, owed much to him, not only for his part in its foundation but for keeping up year after year his interest and participation in its work. His war service in France, honorable and useful as it was, was only incidental to his career, which was marked at all times by splendid efforts exerted in behalf of those unable to help themselves. Dr. Murphy did much to help dispel ignorance about the care of infants, particularly in the districts where ignorance is the greatest foe to life, and he labored incessantly to the end that the dangers to infancy caused by poverty as well as by ignorance might be lessened and that Hartford, any part of it, might be a safe place for a baby to be born in."

A. E. ABRAMS.

1891

DR. LOUIS LE BRUN has removed his office to 520 Madison Ave., Albany, N. Y. Dr. Le Brun is devoting his time to diseases of the nose and throat.

DR. JOSEPH W. DROOGAN is in practice at 1513 Parker Street, Borough of Bronx.

1892

DR. SMITH N. ROODS is in practice at Milton, Saratoga County, N. Y. Dr. Roods has been health officer of the town of Milton for some years past.

DR. ELMER E. REICHARD of Averill Park, has been appointed health officer of the town of Sand Lake, Rensselaer County, N. Y.

1893

DR. MARTIN S. REID is in practice at Coeymans, N. Y. Dr. Reid has been health officer of the town of Coeymans for some years.

1898

DR. FRED. B. WEAVER is in active practice at Hyde Park, N. Y. Dr. Weaver is taking post-graduate work at Albany Medical College with the class in Infections, Diseases and Public Health.

1901

DR. EDWARD J. HANNAN, of 1814 Fifth Avenue, Troy, N. Y., has been appointed Deputy Medical Inspector of Schools of the city of Troy.

1902

DR. HUGH M. COX, 285 St. Nicholas Avenue, New York City, has issued the following appeal in promotion of the success of the twentieth

reunion of his class. In phraseology unique and in seductiveness alluring it cannot fail of its purpose, and it establishes a precedent which may well be followed in restoring alumni day to its full measure of popularity.

MEMBERS OF THE CLASS OF 1902
ALBANY MEDICAL COLLEGE

Dear Old "Doc:"

Any guy who can stand the gaff for twenty years deserves to be addressed by the above appellation.

Our **class reunion** will be held at **Albany Medical College at 4 p.m., June 12th.** The **Alumni banquet** will be held at **Albany Hospital at 7 p.m.,** the same day.

You will do yourself and me a great favor and courtesy by giving particular consideration to three things:

First.—Make your reservations for dinner without delay. We will arrange to have members of our class at an individual table.

Second.—Please send me at once a brief history of your activities since graduation. This is important. It is a time-honored custom and should not be neglected.

Third.—Rake up excuses that will take you to Albany on the 12th—not excuses that will keep you away.

Twenty years is a hellova long time and if any man among us has not made enough money to lay off for a day, the rest of us will "kick in" and stake him.

Trusting to hear from you within forty-eight hours and to see you June 12th, with sincerest personal regards, I am

Faithfully yours,

HUGH M. COX, President,

285 St. Nicholas Ave.,

New York City.

P.S. I shall be grateful for the address of Fred Lettice.

1904

Among the younger alumni the career of DR. MARCUS A. CURRY has been particularly successful, for in less than fifteen years after graduation Dr. Curry was made Superintendent and Chief Executive Officer of the State Hospital of Morris Plains, New Jersey, a very responsible executive position, by which he directs the activities of an institution providing for over three thousand patients a year, and involving a yearly expenditure of nearly a half million dollars. In the annual report of the hospital for the year ending June 30, 1921, the Board of Managers refer to Dr. Curry's administration in words of the highest praise.

1905

DR. MILES J. CORNTHWAITE is practicing at Ballston Spa. Dr. Cornthwaite after practicing at Schenectady for a few months settled in Ballston Spa, where he has since enjoyed a good general practice.

DR. WALTER A. COWELL is practicing at 302 N. Barry Street, Olean, Cattaraugus County, N. Y.

1906

DR. CHARLES E. PRESCOTT, of Hudson Falls, read a paper on "A New Aid in Obstetrics" (Preliminary Report). At the May meeting of the Medical Society of the County of Washington, held at the Mary McClellan Hospital, Cambridge, N. Y.

1907

DR. FLOYD J. ATWELL is in practice at Cooperstown, N. Y. Dr. Atwell is health officer of the village of Cooperstown and the town of Middlefield. He is also attending physician to Thanksgiving Hospital.

DR. HERBERT J. WRIGHT is practicing at Schoharie, N. Y., where he has been since 1908. Dr. Wright is actively engaged in general practice.

1908

DR. JOHN J. RAINEY of 104 2nd Street, Troy, N. Y., read a paper at the May meeting of the Medical Society of the County of Washington, on "A Practical Consideration of the Maxillary Sinus." The meeting which was well attended was held at Mary McClellan Hospital, Cambridge, N. Y.

1914

DR. CLARENCE GARDINIER is practicing in Schenectady, N. Y.

DR. CHARLES A. JOY, Sonyea, N. Y., is senior assistant physician at Craig Colony.

1915

DR. PERCY H. AUSTIN is located at Castleton, N. Y. Dr. Austin is health officer of the village of Castleton and the town of Schodack.

DR. FRANK E. DEAN, JR., is in practice at North Burlington, Vt.

DR. BRYON G. SHULTS is practicing at St. Johnsville, N. Y.

1916

DR. RAEBURN J. WHARTON is practicing at Richmondville, N. Y.

DR. LESTER E. SANFORD is practicing at Boonville, Oneida County, N. Y.

DR. G. W. PULLEN, JR., is practicing at Fitzdale, Essex County, Vt.

DR. GEORGE M. RICHARDS is practicing at Stony Point, Rockland County, N. Y.

DR. LESLIE B. SEAPORT is in practice at Cohoes, N. Y. Dr. Seaport's address is 23 Schuyler Street.

DR. HOWARD B. SWAN, of Chestertown, N. Y., was recently appointed health officer of town of Horicon, Warren County, N. Y.

DR. JACK BLUMBERG is in practice at Wurtsboro, Sullivan County, N. Y.

1917

DR. LEROY J. BUTLER of Glens Falls is secretary of the Medical Society of the County of Saratoga.

DR. HOWARD N. DAVIS is practicing at 63¹/₂ Grand Boulevard, Binghamton, N. Y.

1919

DR. JOSEPH O'C. KIERNAN has resigned the position of Resident Physician at the Brady Maternity Hospital, where he has been for the last three years. Dr. Kiernan has opened offices in the Fort Frederick Apartments, corner Washington and Swan Streets, Albany, N. Y., and will give his attention to the practice of obstetrics.

1920

DR. JOSEPH H. CORNELL is practicing at Scotia, N. Y.

1921

DR. HAROLD J. HARRIS is in practice at Westport, N. Y.

NEW YORK STATE MEDICAL LIBRARY

Edited by FRANCES K. RAY

RECENT ACCESSIONS

- American child hygiene ass'n. Transactions. 11th sess. 1920.
 American laryngological ass'n. Transactions. 42d sess. 1920.
 American medical ass'n. Section on dermatology and syphilology. Transactions. 72d sess. 1921.
 ——— Section on diseases of children. Transactions. 72d sess. 1921.
 Benedek, L. and Porsche, F. O. Ueber die entstehung der negrischen körperchen. 1921.
 Bernstein, Ralph. Ultraviolet rays in modern dermatology. 1918.
 Bolduan, C. F. and Grund, Marie. Applied bacteriology for nurses. 3d ed. 1920.
 Brill, A. A. Psychoanalysis; its theory and application. 3d ed. 1922.
 Brumley, O. V. Diseases of the small domestic animals. 1921.
 Buckley, A. C. Basis of psychiatry. 1920.
 Bulkley, L. D. Nurses' manual of the skin. 1921.
 Cotton, H. A. The defective, delinquent, and insane. 1921.
 Dennett, R. H. Simplified infant feeding. 2d ed. 1920.
 Dwight, Thomas. A clinical atlas; variations of the bones of the hands and feet. 1907.
 Emerson, C. P. Clinical diagnosis. 5th ed. 1921.
 Farr, C. B. Outlines of internal medicine for the use of nurses and junior medical students. 3d ed. 1920.
 Fischer, M. H. Oedema and nephritis. 3d ed. 1921.
 Funk, Casimir. Vitamines; tr. by H. E. Dubin. 1921.
 Hartzell, M. B. Diseases of the skin. 1919.
 Hay, John. Graphic methods in heart disease. 1921.
 Horwood, M. P. Public health surveys; what they are, how to make them, how to use them. 1921.
 Jackson, J. A. and Salisbury, H. M. Outwitting our nerves; a primer of psychotherapy. 1921.
 Lamson, P. D. Heart rhythms. 1921.
 London. Royal college of physicians. Catalog of the library. 1912.
 MacCollum, W. G. Textbook of pathology. 2d ed. 1920.
 McDonald, A. L. Essentials of surgery. 1919. (Lippincott nursing manual.)
 McLeod, A. L. Textbook of chemistry for nurses and students of home economics. 1920.
 Mayberry, J. W. and Mayberry, L. W. Primary physiology, hygiene and sanitation. 1918.
 Morse, J. L. and Talbot, F. B. Diseases of nutrition and infant feeding. 2d ed. 1920.

ALBANY MEDICAL ANNALS

DEFERRED MENINGITIS FOLLOWING HEAD INJURIES

By GEORGE BLUMER, M. D.

New Haven, Conn.

Patients with head injuries who develop meningitis usually show symptoms of this complication about the second or third day, or at latest from the fifth to the eighth day. A *delayed* meningitis may develop about bone splinters or necrosed bone as long as three months after the injury. Still more rarely a meningitis may occur years after the original trauma. This report concerns two such cases which present some unusual features. In order to differentiate them from the more common cases of *delayed* meningitis I have labelled them *deferred* meningitis.

CASE I

M. B., aged 20, a machinist, was first seen November 18, 1917, with the late Dr. W. S. Russell of Wallingford.

The family and past history were without bearing on his illness.

October 2, 1917, the patient was in an automobile accident. He was pinned under the machine, was unconscious for eighty minutes and had bleeding from the nose but none from the ears. He was able to walk upstairs the same evening at which time he vomited blood which he had probably swallowed. He had a bruise over the right eye, slight abdominal tenderness and fever lasting a few days. A week after the accident he felt well enough to go down stairs, but that evening had a chill followed by fever which has continued since. With the fever he had an inconstant frontal headache and pains in his back and legs. He has been nauseated but has not vomited. His hearing has been distinctly impaired. He has been sleeping poorly.

Physical examination showed slight stiffness of the neck. There was impaired hearing most marked on the left side. No facial or ocular paralysis. The fundi were normal except for dilated veins. The pharynx was negative to palpation. There were scattered coarse râles over both lungs

with fine moist râles at the bases behind. The heart and abdominal organs were normal. The superficial reflexes were normal. The tendon and periosteal reflexes were exaggerated. The plantar reflexes were normal. There was no ankle clonus. Kernig's sign was positive. The patient was mentally clear. A slight ecchymosis about the left eye was still visible. The temperature ranged between F. 100 degrees and F. 104 degrees. There was, at times, a watery nasal discharge. The urine was negative. The leucocyte count, November 10, was 20,000 with eighty per cent polynuclears; November 18, it was 14,000 with ninety per cent polynuclears. The patient continued to have fever until November 27 and then gradually improved though he still had a watery nasal discharge at times.

The impression at that time was that he had a *fracture of the base of the skull* probably involving the nasal sinuses with a *subdural abscess*.

The patient remained well until Thanksgiving, 1919, when he had an attack of fever with delirium and again a watery nasal discharge. He recovered in about three weeks and remained well and at work until November 26, 1920.

November 26, 1920, the patient suddenly developed headache. He vomited once. He was delirious from the onset of this attack and again developed a fever ranging from F. 99 degrees to F. 103 degrees. The attack seemed similar to that of the preceding year.

November 29 I saw the patient with Dr. Wallace N. Sweet.

Physical examination showed the patient to be semi-conscious. His neck was stiff. His pupils were equal. There was a right-sided hemiplegia involving the face, arm and leg. The patient occasionally ejaculated one or two words as "Oh God" or "Well." The internal organs were negative. There was an urticarial wheal over the right buttock six centimeters in diameter and a smaller one on the back of the thorax. The right knee-kick was absent and there was a positive Babinski sign on the right side. There was a well marked bilateral Kernig's sign. Extensive herpes was present on both upper and lower lips. The urine showed a trace of albumen but was otherwise negative. The leucocyte count was 7,000 with a normal differential. A diagnosis of *acute meningitis* was made and a lumbar puncture gave a cloudy fluid containing 230 cells to the cubic millimeter, mostly polynuclears. Cocci were present in large numbers and subsequent tests showed them to be pneumococcus, type IV. The fluid was anticomplementary so a Wassermann test could not be estimated. The colloidal gold test registered 0000024421. The patient died November 30 and an autopsy was not permitted.

Summary.—A healthy young adult male received an injury to the frontal region in November, 1917. This was followed by fever and signs of meningeal irritation from which he gradually recovered after eight weeks. He remained well, except for an intermittent watery nasal discharge, until November, 1919, when he had a second febrile attack with delirium and watery nasal discharge from which he recovered in three weeks. In November, 1920, he suddenly developed a rapidly fatal pneumococcus meningitis.

CASE II

Mrs. G., an American, aged 24, was seen with Dr. C. W. Holbrook, September 14, 1921.

Her family and past history were negative except that in 1915 the patient was in an automobile accident. At that time there was a wound of the frontal region and a diagnosis of skull fracture was made. The patient developed a complicating pneumonia but recovered completely except that since that time she had a dripping from the nose which had ceased about two weeks preceding the present illness.

September 12, 1921, at 10 a.m., the patient had a chill, felt very badly and could hardly stand. She vomited at the onset of the illness and has done so at intervals since. She complained of severe headache and has been irrational. She has usually been somnolent but at times has tried to get out of bed. She has had incontinence of urine. Fever as high as F. 105 degrees has been present.

Physical examination showed a somewhat obese young woman. There was a scar in the left frontal region six centimeters long from the hairy scalp to the orbital margin. She was flushed and somnolent. The pupils were widely dilated and reacted feebly to light, the right more feebly than the left. The conjunctivae were injected. The eyes deviated to the left. There was paralysis of the right external rectus. The neck was stiff and painful when moved. There was no retraction of the head. The knee-kicks were sluggish. There was a dubious Kernig's sign. The internal organs were negative.

A diagnosis of *acute meningitis* was made and the patient was sent to the New Haven Hospital on the service of Dr. Francis G. Blake who has kindly permitted the use of the hospital records.

The course in the hospital was without striking change. The fever ranged from F. 102 degrees to F. 105.5 degrees, the pulse from ninety to 142 and the respirations from twenty to sixty. The patient gradually became more stuporous and died September 16. While in the hospital she developed beginning choked disc, more marked on the left side, a suggestive Babinski and a suggestive Kernig. The urine contained a heavy trace of albumen with hyaline and granular casts. The leucocyte count was 16,600 with eighty-three per cent polynuclear and seventeen per cent mononuclear cells. A Wassermann reaction was negative as was a blood culture. Spinal punctures gave a hazy fluid containing from 1,600 to 3,000 cells per cubic millimeter, mostly polynuclears. There were many Gram positive diplococci which further investigation showed to be pneumococcus, type IV.

An autopsy was performed three and three-quarter hours after death by Dr. Florence Scoville. I am indebted to Professor M. C. Winternitz for permission to use the notes.

The Anatomical Diagnosis was as follows:

Primary.—Purulent frontal and ethmoidal sinusitis; tuberculous cerebrospinal meningitis; acute spleen tumor; cloudy swelling of the viscera.

Subsidiary.—Fibrous pleurisy.

The Bacteriological Diagnosis:

Tubercle bacillus (histologically),
Pneumococcus, type IV (clinically).

Following is the note concerning the brain:

On attempting to remove the skull the dura is found adherent to the bone over the occipital region. On opening the dura several areas of purulent exudate are found. The exudate is most marked along the longitudinal fissure extending from here along the anterior superior surface of the right hemisphere. The exudate is also seen along the inferior surface of the frontal lobe as far back as the anterior margin of the cerebrum. The cerebrum and posterior part of the cerebral hemispheres are relatively free from exudate. The skull is of interest. The scar on the forehead extends through the bone and shows on the inner table of the frontal bone. Just medial to this and below is a sinus tract (normal). The bone is clipped away and the ethmoid cells exposed. The mucous membrane looks rather sticky and congested, though no frank pus is seen. The ethmoid bone and septum are removed together. The left frontal sinus is carefully opened and yellow pus is found to line the cavity. The mucous membrane is thickened and red in color. On sectioning the brain the ventricle shows a slight dilatation but no pathological reaction can be seen. The brain substance throughout is apparently free from change. Even on multiple section no areas of softening can be found.

Histological. The brain substance shows nothing remarkable. Sections which include the meninges show a striking picture. The sections are taken through the exudate both from the cerebral hemispheres and from the base of the brain. One section is also taken from the meninges of the cord just at the base of the brain. The general picture is the same in all areas, although the reaction is more marked toward the base of the brain. The general picture is that of oedema of the pia-arachnoid layer with a marked mononuclear infiltration. The cells are of the large and small round cell types. The small round cells are scattered rather indiscriminately through the tissue, but they are most compact around the blood vessels, forming a regular cuff. Around the base of the hypophysis the exudate is rather heavier than elsewhere and here definite masses of polynuclear cells are seen infiltrating the round cell exudate. Sections taken through the cerebrum to include the adherent dura show an old fibrous process but no definite tubercles. Gram stains of various areas are negative. Acid fast stains of the exudate show acid fast bacilli.

Bacteriological.—Swab from the left frontal sinus shows a Gram positive organism of the diphtheria type. Smears show Gram positive lancet shaped diplococci.

Summary.—A healthy young adult female suffers a skull fracture with pneumonia, following an automobile accident in 1915. This is followed by an intermittent, watery nasal discharge. In September, 1921, she suddenly develops the symptoms and signs of acute meningitis and dies in four days. Lumbar puncture during life shows a type IV pneumococcus infection of the spinal meninges. Autopsy shows a purulent frontal and ethmoidal sinusitis and a tuberculous cerebrospinal meningitis.

Case I differs from similar cases recorded in the literature in that the patient suffered *two* attacks of inflammation at the site of injury following the original attack, one after two years, the second fatal attack after three years.

Case II would have been regarded as similar to cases of deferred meningitis reported in the literature had not the autopsy shown that the final illness was a mixed infection of the meninges with the tubercle bacillus in the cerebral and upper spinal meninges and pneumococcus type IV in the spinal fluid.

The two cases had in common the long delay between the original injury and the fatal meningitis, and the occurrence of an intermittent watery nasal discharge which ceased in Case I months and in Case II weeks before the final illness.

A survey of the available literature shows that similar cases, while rare, are by no means unknown. The papers of Wagner (1890), Fujisama (1901), Graf (1903), and Rubin (1908) contain records of cases in which a fatal meningitis followed from three months to five years after the original injury. In several instances the autopsies showed evidences of old cerebral injury in a silent area, usually the frontal region. Sinus infections, imperfectly healed fissured fractures and multiple foci of cerebral softening are noted in the autopsy protocols.

The exact mechanism of the infection is not always clear. In some instances, as in our two cases, direct infection from an infected sinus seems probable. In other cases direct infection through imperfectly healed fissured fractures appears likely. In a third group of cases no evidence of direct infection is obtainable and one is compelled to fall back on the possible explanation that the old brain injuries constituted a *locus minoris resistentiae*, or the theory of bacterial latency with subsequent activation as a result of a lowering of the general resistance. While these cases are rare the frequency of automobile accidents at the present time behooves us to be on the watch for them.

REFERENCES.

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|--------------|--|
| WAGNER, W. | <i>Samml. Klin. Vortraege</i> , 1890, No. 271-2. |
| FUJISAMA, K. | <i>Miinchener Med. Woch.</i> 1901, XLVIII, 1784. |
| GRAF. | <i>Charité Annalen</i> , 1903, XXVII, 300. |
| RUBIN, J. | <i>Miinchener Med. Woch.</i> , 1908, LV, 2127. |

SYMPATHETIC OPHTHALMIA

Read at the Meeting of the Eastern New York Ear, Eye, Nose and Throat Society held at the Albany Hospital, March 15, 1922

By J. J. O'BRIEN, M.D.
Schenectady, N. Y.

My reason for bringing before you this very rare disease, sympathetic ophthalmia, has been suggested by some recent experiences. Sympathetic disease has been made even more important, if that were possible, by the Workmen's Compensation Act. Those of us who have the treatment and care of the injured eyes of the employees are extremely anxious, not only from the patient's standpoint, but from the employer's, not to have this fatal disease supervene on an already serious accident. So I thought it was worth the time to collect the facts, as well as I possibly could, and present them for your consideration tonight, in the hope not so much of adding anything to your knowledge, but that the discussion which this shall elicit will clear up some of the obscurities that at times distract one. I shall not deal at all with the theory of the disease, as to what causes it, but shall confine my observations to the injury to the exciting eye, the clinical aspect of it and the symptoms in the sympathizing eye.

That this disease is not at all common can be seen at a glance when I recite to you that the Senior Consultant of the A. E. F. in France, among all the injured, saw but one case, and Dr. George S. Derby, who had a very extensive experience with the Harvard Unit, did not see a case at all. Randolph says¹: "Sympathetic ophthalmia is unquestionably a rare disease, just how often it occurs it is impossible to say. A connection of several years past as Consulting Surgeon of two large railroads and also professional work for some time in a thickly populated mining district, has given me opportunities of seeing this character of penetrating wounds of the globe and only once under these circumstances have I seen 'sympathetic ophthalmia.' Ohlesman found in 556 cases of severe injuries to the eyes that sympathetic ophthalmia occurred but twice." Moore² whose

case I will call to your attention, says: "In spite of the many perforating wounds of the eye sympathetic ophthalmia has been of very rare occurrence during the war and any case of it is worth recording." The evidence in support of the rarity of sympathizing disease collected from the authors of twenty years and more ago and of those now in active service is convincing and conclusive. Not alone is sympathetic disease indeed rare, but it is preceded by a markedly definite characteristic condition and symptoms in both the exciting and sympathizing eyes.

A very eminent ophthalmologist connected with one of the large hospitals that gives him ample material for study of all classes of the eye diseases and all kinds of injuries, lays it down as basic that the injured eye, in order to be capable of transmitting sympathetic disease, must itself be the subject of a plastic iridocyclitis. In his experience he has never seen a case of serous iridocyclitis produce sympathetic disease, nor has he ever seen a case of sympathetic irritation pass over from the irritative state into that of plastic iridocyclitis in the sympathizing eye. A prominent pathologist³ states that, "Sympathetic uveitis begins simultaneously in both eyes. In other words by the time it can be recognized in the injured eye, it already exists in the other eye." These are type opinions that could be added to from the literature, but not with much profit. With the knowledge we now possess it does not seem possible to determine clinically what particular kind of iridocyclitis will give sympathetic ophthalmia from that which will not. Most all, however, are in accord that iridocyclitis in an injured eye is necessary to produce sympathetic ophthalmia. And there is an unanimity of opinion that sympathetic irritation is not sympathetic ophthalmia. It may perhaps be that many cases reported as sympathetic ophthalmia are not this at all. The greatest variety of diseases have been described as sympathetic: for instance, amblyopia, blepharospasm, neuritis, choroiditis, glaucoma, conjunctivitis, keratitis. The fact that an eye has been destroyed by an injury by no means justifies us in regarding, without additional proof, any subsequent disease of the other eye, as sympathetic. This assumption should be made only when such disease presents

the characteristic clinical picture of a particular type of plastic iridocyclitis. It is very well known that *ulcus serpens* or panophthalmitis following a trauma never produces sympathetic ophthalmia. It may be stated that a definite type of injury, *i.e.*, penetrating wounds of the globe, followed by a very definite type of reaction, namely, plastic iridocyclitis, are necessary to produce sympathetic ophthalmia. Then again there are a great number of cases where the last two conditions obtain and the injured eye is not at all affected. For out of the thousands of such injuries that happen yearly, it is indeed rare that sympathetic ophthalmia is seen, even in our largest eye hospitals." Dr. George S. Derby⁴ says: "In my experience they have always been characterized by an inflammation in the exciting eye and I should not consider a diagnosis of sympathetic disease unless this had been the case. I have my doubts whether there is any such thing as true sympathetic irritation as distinguished from the irritation that one normally gets when the first eye is inflamed." The consensus of opinion of several whom I consulted may be summarized thus: There is no sympathetic disease without an iridocyclitis in the exciting eye. Experience seems to determine that a sympathetic ophthalmia never occurs unless the injured eye is in a condition of iridocyclitis. Sometimes the iridocyclitis may take the form of a low grade uveitis with spots on Descemet's membrane without any plastic exudate over the iris. If slight iridocyclitis stops in a few days, the eye should not be removed but when the iridocyclitis persists with subsequent attacks in an eye which is useless from an injury the eye should be removed. Some hold that you can never have sympathetic disease unless the patient is already ill. There may be something in this. Perhaps this may be the reason why in identical conditions one has sympathetic disease and the other has not.

I was very much surprised in my study of this condition to discover that sympathetic disease followed cataract operations and Hudson⁵ quotes Mac Reynolds, who analyzed 160 cases, thirty-nine of which followed intra-ocular operations, especially cataract operations. The first gentleman whom I quoted told me that his very first cataract operation

was followed by an iridocyclitis in the operated eye with sympathetic ophthalmia and the loss of vision in both eyes. However, it seems to be more universally held that the kind of injury that is most likely to be followed by sympathetic disease is a perforating wound of the eyeball with prolapse of the iris or ciliary body into the wound, and more especially where a foreign body is lodged within the globe. It is rather strange and gives some food for thought, that a frank infection going on to panophthalmitis has never been known to be followed by sympathetic disease. In the proceedings of the Royal Society of Medicine, already mentioned, Moore's¹ case is worth careful study:

A soldier, aged 23, was wounded in the right eye by the accidental explosion of a detonator on May 28, 1918. On June 2nd he was admitted to the hospital and examination showed a perforating wound with a prolapse of the iris and ciliary body. There were hyperaemia and vitreous hemorrhages. On account of the foggiess of the latter, the fundus could not be seen. On June 18th the eye was enucleated and on July 8th the patient complained that the left eye had some haziness of vision. Two days later there were some circum-corneal injection, slight tenderness on pressure and a very fine deep haze in the lower part of the cornea. The pupil dilated well with no synechia. There was a single dot on Descemet's membrane. The retinal veins were unusually full, otherwise the fundus was normal. Vision was 20/20 and the tension normal. In the right socket it looked as if uveal pigment was attached to the stem of the optic nerve. After removal this was found not to be so. The enucleation had been well done. Next day, the 11th, there were three or four fresh spots on Descemet's membrane, the blood count was normal and the Wassermann negative. July 14th, increase in the Descenitis of the fine type. The corneal stria had increased and the pupil was fully dilated. The retinal veins were engorged and the fundus otherwise normal. After many months of treatment during which the vision became very dim, the eye recovered with useful vision.

Darling⁶ reports a case first seen November, 1916:

He gave a history of being hit some years before by an iron bolt that broke his nose, jaw and ruptured the right globe. Three months subsequent to the first injury the eye was quiet, but he had repeated attacks of redness with pain. Sometime in September, 1916, the vision in the left eye began to fail. Examination showed it to be 5/200ths. The globe of the right eye exhibited an atrophic cornea with slight ciliary injection and no light perception. The left had photophobia, slight ciliary injection, and numerous fine deposits on Descemet's membrane. The aqueous was

cloudy, the iris greenish, the pupil sluggish, but dilated with atropine, leaving a few pigment spots on the lens capsule. The fundus was only faintly seen and the vision was 5 200. The shrunken globe was at once removed and the eye treated by atropine, dionine, mercury, sodium salicylate, heat and sweats. Wassermann, tonsils, teeth and blood were all negative; so also was the T. B. reaction. In December the vision was 20 50 and now but a few spots remained on Descemet's membrane, but the vitreous was slightly clouded. The vision was 20 20. Dr. H. Hill examined the enucleated eye which showed bone formation, but nothing indicative of sympathetic ophthalmia.

This I believe was not sympathetic ophthalmia at all but a uveitis. Another case reported by Darling was seen on October 26, 1916:

There had been inflammation in the right eye for the past two months but no injury. The vision in the right eye had been failing for a month and the past two weeks it had become so bad that the patient had to quit work. The examination of the right eye showed photophobia, a slight ciliary injection, cornea clear, no keratitis punctata, iris greenish, pattern lost, pupil small and no reaction to light, fundus not visible and the vision 20 200. Left eye had marked ciliary injection, cornea cloudy and at 12 o'clock there was a black spot with the iris root adherent; the corneal limbus ectatic for 2 mm., the iris gray-green and rolled forward in the upper half up against the cornea as if there were an exudate behind it. The lens is dislocated forward and the anterior chamber contains lens matter. The vision is faint light perception. The X-ray shows sinuses and teeth negative, nothing in the globe. There is pus in both tonsils. Wassermann and T. B. negative. The left eye was enucleated. The right eye was treated in the usual manner and the tonsils were promptly removed. The vision improved to 20 70 but five days later it fell again to 20 200. Thirteen days after entrance fine dust-like deposits were first seen on Descemet's membrane. For four days they were numerous and could be seen without a lens. November 17th iris appeared thickened; on the 20th there were nodes in it. December 11th new vessels appeared. November 20th: Fingers, 3 ft.; January 6th, $\frac{1}{2}$ ft. At present there is light perception with perfect projection. There are occlusion and seclusion of the pupil. Section from the enucleated eye showed a typical picture of sympathetic ophthalmia in all parts of the choroid. Two points of interest in this case are that it followed a small perforating ulcer of the cornea; and that the keratitis punctata did not appear in the sympathizing eye until late in the disease.

It seems that to establish a diagnosis of sympathetic ophthalmia there should be a traumatized eye, preferably a penetrating wound of the globe, followed by a more or less

severe iridocyclitis usually of the plastic type with posterior synechia. This is followed after an interval of not less than nine days from the date of the injury by the onset of a particular type of inflammation in the sympathizing eye. This is nearly always characterized by diminution of vision, photophobia, redness, tenderness on pressure, plastic iridocyclitis, Descemetitis, posterior synechia and cloudiness of the vitreous. The symptoms may follow in the above sequence but this is not constant. When firmly established the vision drops; the usual result being blindness. To prevent this disaster are there any beacon lights that will safely guide our footsteps? The following may be of value:

(a) When an injured eye recovers without an iridocyclitis and the globe does not contain a foreign body it is reasonably safe not to enucleate.

(b) Where there is a prolapse of the iris into the wound this should be cauterized and if followed by a mild iridocyclitis that subsides in a few days the eye need not be removed.

(c) When the injury has destroyed useful vision and is followed by an iridocyclitis of the plastic type it should be promptly removed.

(d) Where there is a foreign body within the globe that cannot be extracted the eye should be at once enucleated.

BIBLIOGRAPHY

¹NORRIS and OLIVER: *System of Diseases of the Eye*, Vol. 3, p. 274.

²Royal Society of Medicine, Proceedings, 1919. Section on Ophthalmia, p. 25.

³VERHOEFF.

⁴FUCHS: *Ophthalmia*, Duane's Translation, 3rd ed., p. 348

⁵HUDSON: *Journal of Arkansas Medical Society*, 1916, p. 301.

⁶DARLING: *Ophthalmic Record*, November, 1916.

A CHAPTER ON SANITARY DUTIES, AS OBSERVED IN THE HISTORY OF ALBANY, FROM 1859 TO DECEMBER 31, 1921

By ALBERT VANDER VEER, M. D.

Albany, New York

(Continued from *June ANNALS*, p. 277)

Mercantile establishments examined during year with a total of 867 inspections made. This system reduced to card index basis and routine inspection established in a satisfactory manner. Typhoid fever interesting sanitarians gradually throughout the country, and copies of paper written during year by Dr. Craig, giving typhoid statistics, requested from a number of sources. Nine hundred and forty-one cases of sick indigent poor assigned to health physicians and 4,368 calls made by them. Six thousand and twenty-eight dead animals removed and 150 pounds of meat destroyed. In December there were complaints regarding Pintsch gas filling sewers in the neighborhood of gas house. Nuisance thoroughly investigated and satisfactorily abated. Public well, corner of Clinton and Schuyler streets, unwholesome and unfit for use. Chemical and bacteriological examination recommended, and, if warranted, well to be closed.

1905. Board of Health the same, with Edward S. Hazeltine, Sanitary Inspector, in place of Francis G. Garvin.

A most satisfactory year. Death rate slightly diminished. Smallpox buildings nearing completion, also contagious hospital. Garbage question remains open for solution. During the year occurred the collapse of John G. Myers' store. Every employee connected with the Bureau of Health on hand for thirty-six hours continuous service, which was rendered in a thorough and unselfish manner. A number of cases of typhoid developed, suspected from milk route, milk peddler. Farm, etc., thoroughly examined and conditions remedied. Several cases reported undoubtedly contracted in other sections of the state and no proof of cases being infected by this milk supply. Death rate, 18.09.

Both birth and marriage rate decreased somewhat during year. Small increase in typhoid fever, scarlet fever and diphtheria, and diminution in chicken pox, measles, whooping cough and deaths from diphtheria. Epidemic scarlet fever seemed imminent at one time, but with vigorous enforcement of quarantine regulations and co-operation of some school principals, the disease was kept in limits. No smallpox during year. In Bureau of Plumbing, Drainage and Ventilation, work fully up to the average. Building progressing in Albany. Bureau of Sanitation abated many nuisances. Contagious Disease Inspector's work particularly commended, and his daily reports enabled health office to be thoroughly posted and prompt measures taken to stamp out any threatened menace to health of public. Office papers are properly filed and books complete to date. Infant mortality still large during summer months, and a question whether the city should not take some practical steps to furnish municipal depots with pure milk. The expense would not be very large, and compensation a great saving in life. Eleven per cent of all deaths recorded resulted from Tb. Tb. regulations of cases and control of infected persons and premises are being debated. This municipality needs a specially constructed hospital for Tb. A careful consideration of the subject earnestly recommended.

1906. All officers same as 1905, with exception of Henry C. Pfeiffer, Sanitary Inspector in place of David W. Martin.

City of Albany in a healthful condition. Death rate, 17.77, less non-resident deaths, 16.21. Increase in scarlet fever, diphtheria and whooping cough. Decrease in cases of typhoid, chicken pox and measles.

Contagious diseases in 1895.....1285

Contagious diseases in 1904..... 602

Contagious diseases in 1906..... 555

Card index method for terminating quarantine for scarlet fever and diphtheria proves its usefulness in limiting period of quarantine for these diseases. Inspectors made a large number of collective investigations, 606, from which the office derived most useful information. A large number of letters written to business houses and individuals, warning them of presence of contagious diseases. Increase in number

of drains laid, cesspools put in, wash basins put in sanitary condition, and bath tubs introduced. A number of complaints of nuisances, 586, of which eighty-one were privy vaults. Number of inspections nearly threefold during year. Seven hundred and sixty-six cases were assigned to health physicians. Number for the previous year 917. Three thousand visits from health physicians. Smallpox and contagious disease hospitals both opened during year. Two cases of smallpox. A number of letters written during the year to municipal authorities in other cities and states giving information of local health conditions. City of Albany is caring for health of its citizens as satisfactorily as most other municipalities. Dr. Craig may well feel proud of such statistics. His administration adds very decidedly to the increased health of Albany, as regards improvement in sanitary matters.

1907. All officers same as 1906, with exception of George W. Papen, Jr., M. D., Health Physician in 4th district.

Health condition stationary, so far as death rate was concerned—18.66, less non-resident deaths, 16.63. Births 1310. This is not altogether a satisfactory report, but the same pertains to other sections of the state. In all other places, but New York and Buffalo, a twenty-five cent fee is paid for each birth reported. This is believed to be the failure of Albany birth statistics. New marriage law takes recording of same out of Bureau of Health office, so there are no statistics during past year. Scarlet fever in epidemic form during the winter months, but death rate low. First epidemic of this disease since 1898-99. Slight decrease in typhoid. Tb. report very satisfactory. Considerable increase in number of living cases, but Bureau of Health making progress in controlling these. Health physicians made 4105 visits. Recommendations of previous years continued, *i.e.*, control of milk supply, Tb. hospital outside city limits, and placing alleys under city control. Several investigations of importance during the year, such as burning of soft coal, several individual smoke nuisances, gypsies' camp, Humane Society kennels, etc. Important meeting attended by health officer in regard to pumps in south end of the city. Water nuisance, corner of Allen Street and Washington

Avenue, terminated. This had been in existence many years. Albany compares favorably with other cities of same class and geographical location. Some increase in cases of diphtheria and croup. Number of diphtheria cases, while large, were almost epidemic in New York City, and much more severe in Albany but for prompt use of anti-toxin, which has robbed this disease of its former terror, and death rate a small factor in total statistics. One hundred and eighty-five cases of Tb. reported. One case of smallpox quarantined. It was detected in August and promptly confined in smallpox hospital. Case discharged in December. A large number of inspections and vaccinations, and public school authorities co-operated with Bureau of Health in enforcing vaccination laws—the only safeguard. Tb. death rate lowest since 1895; now 196. There were 241 deaths the year before. Three cases of milk inspection below three per cent butter fats, and remedied. Health physicians report actual decrease in amount of indigent sickness. One thousand two hundred and sixty-eight more kennel dogs and cats removed than last year. Delay in regard to water nuisance at North Allen Street and Washington Avenue, caused by legal complications arising from street not being accepted by city. Flow of sewage from certain Pine Hills district, through St. Mary's Cemetery, and vacant lot east to sewer in neighboring Quail Street.

Two circulars carefully prepared: "Quarantine and Disinfection," and "Consumption." Sputum boxes for collection of sputum introduced during year, and very satisfactory in operation. Five hundred and sixty-six bottles antitoxin for diphtheria, also for tetanus antitoxin distributed.

1908. W. G. Van Zandt, Registrar; Annette Coplin, Clerk. Rest of Bureau of Health the same as 1907.

Death rate, 17.46, less non-resident deaths, 14.97. Births, 1342.

A healthful year and less contagious disease than for several years. One case of smallpox. Health physicians made 2634 visits. Same recommendations of previous year in regard to milk supply, collection of garbage, erection of Tb. hospital, and placing alleys under proper control. Additional clerical assistance much desired.

1909. Henry F. Snyder elected Mayor. Health Department same as 1908.

Death rate, 1905, less non-resident deaths, 16.78. Births, 1343. Comparatively few cases of contagious diseases. Report of Tb. cases increasing, but control progressing satisfactorily. Two new diseases added by State Department of Health to report, *i.e.*, cerebro-spinal meningitis, and infantile paralysis. Several great movements with object of improving health of citizens called to attention of public for careful consideration, when appropriate time arrives for introducing these advances to city government, *i.e.*, employment of visiting nurses; medical inspection of schools; open air instruction for invalid children in public schools; placing milk stations, during hot season, for sale of milk at cost to poor; control of milk supply and sale of food; collection of garbage; cleaning of all alleys, under direction of Department of Public Works. The above specially commended for consideration. Also the danger of destruction by fire of valuable records in the Bureau of Health is very great, and recommend fireproof vault be built in basement of City Hall for such records as are not in daily use. Office has not adequate means for filing and preserving plans, Department of Plumbing, Drainage and Ventilation present for examination and approval. Recommendation for purchase of steel filing cabinet for heavy books containing records of vital statistics and plans of Plumbing Bureau.

1910. James B. McEwan, Mayor. All other city officers in Bureau of Health the same.

Death rate, 20.88, less non-resident deaths, 17.92. Births, 1442, an increase of one hundred over last year. Menaced three times by reported smallpox, and patients quickly taken out of city to smallpox hospital. Again the value of latter abundantly demonstrated. Tb. rate about the same as previous year. Health Bureau now has seven hundred living cases on file. Use of nitrate of silver now employed in the eyes of newborn children.

Same recommendations regarding garbage, visiting nurses, etc. Time seems nearly at hand when some, or all, of these recommendations should be adopted. The danger of destruction of valuable records again called to attention of Common Council.

1911. James B. McEwan, Mayor; Joseph D. Craig, Health Officer; Arthur Sautter, Deputy Health Officer.

Death rate, 20.15, less non-resident deaths, 17.06. Births, 1853, four hundred more than last year. There were thirty-four cases of scarlet fever, with no deaths. Typhoid appeared in March, due to overflowing of unfiltered water into filters, understood as the contributing cause, and a repetition of a like condition will be avoided in future by reconstruction of a portion of walls of filtration plant. There were eighty-four cases, with eighteen deaths. It might be said Albany had been reasonably free from contagious diseases during the past year. Three hundred and twelve cases of diphtheria, with 32 deaths. Three hundred and fifty-nine cases of Tb. under observation, with 243 deaths. Smallpox again visited the city, but cases removed to hospital were treated very humanely. There was considerable increase in amount of work in Plumbing Bureau, Drainage and Ventilation. Means should be provided for more prompt inspection of the various work in plumbing and drainage in the city, and a proper conveyance, with added assistance, recommended.

Garbage still a matter for earnest consideration.

1912. James B. McEwan, Mayor. Bureau of Health remains the same, with the exception of Frederick C. Conway, City Physician, and Louis H. Gaus, Health Physician in 4th district, in place of Geo. W. Papen, Jr.

No material change in death rate over previous year—20.78, less non-resident deaths, 17.35. It is to be remembered that the County House, Orphan Asylums, Tb. Pavilion, and several large hospitals are in the city limits. Births, 2008, an evident increase in rate. Reports justified providing another clerk in Bureau of Health. There were a less number of cases of scarlet fever and typhoid.

Smallpox cases during the year treated so humanely at smallpox hospital that little, if any, difficulty in removing patients there. All cases were treated under the observation of the Bureau of Health. There were three sanitary examinations promulgated during the year. Appointment of milk inspectors' rule in force one month, and already good effects in milk supply to be noted. Appointment of medical

inspector in public schools, and while jurisdiction rests in another department, yet the influence of this work is felt in the records of the Bureau of Health. There are fewer cases of contagious diseases reported in consequence of school inspection.

Recommendation that garbage collection extend to entire city at earliest moment.

This year a successful one from sanitary standpoint and at minimum expense. No suits against city on account of unjust administration, and no complaints against office force. Several recommendations:

First. Adequate equipment of men and office accessories for plumbing department, for enforcing housing law.

Second. An assistant milk inspector to enforce milk ordinances.

Third. Veterinary be appointed to give entire time to inspection of markets, and, particularly, slaughter houses and rendering establishments. To inspect all animals slaughtered in city, and no meat sold in city without certificate attached. Preliminary consideration for a municipal slaughter house.

Fourth. Recommend contract with Bender Laboratory be enlarged to provide Widal test for typhoid fever.

Fifth. Corps of Sanitary Police, under Bureau of Health. One or more policemen could be utilized to advantage in this department.

Sixth. All alleys in city to be taken under control of city.

Seventh. Code of Sanitary Ordinance to be revised. Suitable rules and regulations be promulgated and enforced for construction and management of stables, care of manure, etc.

Eighth. Milk stations established at three different sections in the city, during summer months, for sale of certified milk to parents of worthy poor children, and to be in care of a trained nurse.

Ninth. Valuable records of vital statistics in Bureau of Health to be safeguarded against fire at earliest possible moment.

Tenth. On account of the large amount of work in construction business an additional clerk is recommended.

In a review of Dr. Craig's administration one is impressed with his earnestness in introducing, from year to year, all approved methods in sanitary science, but, at the same time, exhibiting his keen sense of economy in protecting the interests of the taxpayer, in reference to unnecessary experiments.

1913. Mayor Joseph W. Stevens elected, and term of office extended to 1918. Dr. Arthur Sautter, Health Officer; Dr. Fred N. Guyer, Deputy Health Officer; Dr. Charles K. Winne, Jr., Medical Assistant; William G. Van Zandt, Confidential Clerk; Edmund S. Hazeltine, Senior Clerk; Annette Coplon, Stenographer; William B. Hogan, Clerk; William P. Larkin, Clerk; William Brownlow, Chief Plumbing Inspector; William Smith, Plumbing Inspector.

A decided decrease in death rate over previous year. May census, taken by police, showed City of Albany population had increased by several thousand. Death rate for entire city, fiscal year, 17.93. As in other years larger than normal, because of non-residents dying in hospitals and other institutions. Resident death rate 15.08. Comparatively free from communicable diseases. August 1, a case of smallpox appeared, but promptly quarantined in smallpox hospital, necessary precautions taken, and no other cases developed. During the month of August there was an outbreak of scarlet fever in one section of the city. The city milk supply was immediately investigated, supposed infection traced, and proper precautions taken, with the result that no new cases developed from that source. In a short time the epidemic ceased. There were 188 cases, with six deaths. The Sanitary Code, adopted by the Public Health Council, State of New York, was of great benefit to the Bureau of Health, and community in general. The same general, uniform regulations were taken all over the state, with the exception of New York City. The co-operation of Dr. Clinton P. McCord, Medical Director of Schools, with the Bureau of Health, resulted in early detection of communicable diseases, and of immeasurable benefit in suppression of the same. The efficiency of the Bureau of Health has been greatly increased during the year by the appointment of a medical assistant and clerk for general office work, also a clerk for the plumbing department.

Under Chapter 619, Laws of the State of New York, a Department of Vital Statistics has been created, and separated from the Bureau of Health, so that there will be no further report on the matter from this office.

Housing conditions improved during the year. To lower the death rate it is necessary that the sanitary conditions of Albany be improved, the first essential being cleanliness; second, proper disposition of waste. Privy vaults are yet a menace to health. Along with the police census there was taken a census of the privy vaults in the city. There were 432, ninety-eight of which had a legal right to exist, due to no water or sewer connections. Three hundred and thirty-four are to be abated. April 1 to November 1, the Bureau of Health abated 265 vaults, the remaining sixty-nine to be abolished the coming spring.

The dead horse nuisance, in Pine Bush, effectually done away with by adopting a new rule, Bureau of Health, Order No. 33, whereby it is necessary to obtain a permit from this office to remove dead horses from the city. Recommendation for an additional sanitary inspector to be appointed, and garbage collector's title changed to "Sanitary Inspector," he also to act in such capacity. These two to be uniformed, and duties consist of investigation of existing conditions in the city. This inspection is to be at regular intervals, irrespective of complaints. Recommendation that garbage collection be extended over entire city. Chief milk inspector not able, unassisted, to accomplish the work necessary to conform with milk and cream rules and regulations established by Public Health Council, State of New York; therefore, recommend an assistant inspector be appointed, which will greatly add to the efficiency of this bureau. From a laboratory standpoint this bureau is now organized in a very efficient manner, equal to any in the state. A waiting room, examination room, laboratory conveniences, registration of cases, preservation of maps, etc., all very complete.

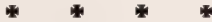
(To be concluded)

EDITORIAL

The two physicians were obliged to keep up a sickly intercourse—not intending a pun. They were too often called in to consult together, to maintain an open war. While the heads of their respective families occasionally met, therefore, at the bedside of their patients, the families themselves had no direct communications. It is true that Mrs. Woolston and Mrs. Yardley were occasionally to be seen at the same tea-table, taking their hyson in company, for the recent trade with China had expelled the bohea from most of the better parlors of the country; nevertheless, these good ladies could not get to be cordial with each other. They themselves had a difference on religious points, that was almost as bitter as the differences of opinions between their husbands on the subject of alteratives. In that distant day, homeopathy, and allopathy, and hydropathy, and all the opathies were nearly unknown: but men could wrangle and abuse each other on medical points, just as well, and just as bitterly, then as they do now.

J. FENIMORE COOPER.

The Crater.



**A Unique
Library**

Just thirty-one years ago, in May, 1891, was established by legislative enactment the New York State Medical Library, which was at that time unique in two particulars and which, in the kind of service it renders, is still unique among medical libraries. At its inception it was distinguished, first, by being the only medical library in the country (perhaps in the world) supported wholly by legislative appropriation; and, second, by being among the very earliest of the libraries, aside from legal collections, to fall into the now numerous special library group. It was not until some years later, in fact, that much attention was paid by public library executives to special collections for the use of any particular profession or business. Even yet most of the important special libraries are supported by business corporations or professional societies for the use of their members, not primarily by and for the

general public. In just this respect the State Medical Library differs also from all other medical libraries in the country, save one which was organized on the same basis two years ago as a section of the State Library of Iowa and is still in its infancy.

As a nucleus, the few medical works already in the State Library were combined with the library of the Albany Medical College (about 2,500 volumes), donated as a whole to the State Library on the understanding that students of that institution should have access to the entire collection, which has been freely open to them ever since. It is interesting to note that even this small nucleus was started by legislative appropriation as evidenced by the following excerpt from the Laws of 1841, chap. 221, sect. 1: "The Treasurer shall pay, on the warrant of the Comptroller, the sum of five thousand dollars a year for three years, from the income of the United States deposit fund, to the trustees of the Albany Medical College, to be expended for additions and improvements to the college buildings, museum, chemical and philosophical apparatus, *and for the purchase of a library.*"

It was estimated at the time the bill was passed that five thousand dollars would be the necessary minimum for the annual support of this new library and that sum was appropriated the first year, but steadily decreased until it was reduced to one thousand dollars in 1897. Later it was increased to two thousand which was received annually until a readjustment of the budget deprived both the law and medical libraries of separate appropriations, granting the State Library as a whole a lump sum to be apportioned among its various sections at the discretion of the Director, as is now the practice. This has not worked wholly to the disadvantage of the Medical Library in the past but under the present economical administration the amount has been reduced to such a minimum that many works essential to a well balanced, up-to-date collection are of necessity omitted from the shelves. Instead of being a storehouse from which physicians may obtain anything needed—books often too numerous or too expensive to be in private libraries—the greatest discrimination must be exercised in the selection and much that is desirable is left out. Were it not for the liberality of the U. S. Surgeon-General's library in Wash-

ington from which we are privileged to borrow, many requests would have to be denied. This, however, involves the payment of transportation by the borrower since the State Library has no funds for such purposes.

History states that in 1895 "in order to use the appropriation to the best advantage, the Regents appointed Doctors Charles E. Jones, Samuel B. Ward, and Willis G. Tucker as a medical library council to advise on the selection of books."

Just when this council lapsed is unknown but again in 1903 "the Director appointed as a medical book board or council to which could be referred questions in which the wishes of the medical profession would naturally control: Doctors Albert Vander Veer, S. B. Ward, Henry Hun, G. E. Gorham and A. W. Elting." This plan and the same committee are still in force and operating with the exception of Dr. G. E. Gorham who resigned in favor of his son, Dr. L. W. Gorham, and Dr. S. B. Ward who was succeeded at his death by Dr. J. L. Bendell. Instead of the former monthly meetings the library now refers to this committee only questions involving large expenditures or requiring professional advice. The continuous willing interest displayed by these physicians over a long period of years deserves the grateful appreciation of their colleagues as well as of the librarian who better knows what a source of help they have often proved in times of difficulty.

Books are ordered by the medical librarian with the approval of the Director. Requests for purchase sent in by physicians are welcomed and granted to the limit of the funds. Publishers send new books to the library on approval at frequent intervals and physicians are invited to look them over and pass upon their merits for purchase.

To its first librarian, Miss Ada Bunnell, is due the efficient service rendered by the original library which was wiped out by the capitol fire of 1911 and through her efforts was gathered the foundation of the present collection, from the administration of which she resigned in the fall of 1912 soon after its removal into the new quarters in the Education Building.

It is somewhat misleading to state the library resources in figures because, being a section of the State Library, many related works included in other medical libraries are

here classed under the Decimal Classification in the general collection although just as readily available. There are about 27,000 bound medical books now on the shelves, many thousand pamphlets and a large number of unbound journals, most of which are incomplete volumes. Four hundred and fifty current periodicals are received regularly exclusive of society transactions and the publications of world-wide national, state and city health boards.

It is a well known fact that this library receives fewer gifts of books and journal subscriptions than any of the medical society libraries partly because the public does not realize that state funds are limited and are under the false impression that the library can purchase all it needs. Physicians are therefore urged to send to the library all books, journals and pamphlets they no longer need in their private libraries. Often an odd number of a periodical will complete a volume for binding; several copies of certain journals can be used for circulation, while duplicates which accrue can be exchanged with other libraries to secure needed items.

For nine months of the year, from the middle of September to the middle of June, the reading room is open every week day from 9 a.m. to 10 p.m.; during the three summer months it closes at 5:30 p.m. About seven thousand readers used the room last year among whom were many physicians from out of town for whom references had been looked up in advance and reserved to save their time while at the library. This special service is the privilege of any physician in the state who chooses to send word in advance of the topic he wishes to study.

To those who cannot come to Albany the library sends by mail single books or packages of references on any designated subject, paying postage one way. These books may be kept four weeks, except in the case of current journals or books in great demand which are limited to a period of two weeks. To obtain this service requires only a letter or a telephone message addressed to the library, stating definitely what is needed. It is desirable also to state whether references in foreign languages are to be included.

The topics requested cover the whole range of medical literature, varying from the question as to the age at which a man acquires a full beard or the baby his first tooth, to an exhaustive study of the history and statistics of epidemic

jaundice or influenza. An epidemic anywhere in the world will create a demand for literature on the disease rampant; certain diseases like tuberculosis and cancer are constantly in the public attention and there are fads in medical as in other lines of reading, the emphasis just now being upon internal secretions and psychoanalysis.

The comparatively recent awakening of public interest in questions relating to health, the emphasis laid by educators upon physical fitness and the broadening out of medical activities into social and industrial fields, have resulted in the extension of the work of the Medical Library to include nurses, teachers and social workers as never before. Probably half of the approximately 1,200 borrowers would fall into this group of special workers. Much valuable information for these classes is contained in pamphlets and bulletins issued by the various child welfare and social and mental hygiene organizations of this country and Europe, the handling and circulation of which often taxes the time of the library force to the limit.

By taking advantage of the system of interlibrary loans now in operation throughout the state, any citizen can borrow through his local library any volume the State Library contains. Thus the facilities at the disposal of the individual reader are almost limitless. The Medical Library also lends books freely to hospitals, laboratories and other institutions for the use of staff members.

From time to time exhibits of new or appropriate books are organized for display at medical society meetings or health conventions. Bibliographies of timely interest are occasionally printed, the most notable of which is the classified list of "Books on Health as Related to the School Child" which in its second edition has recently been distributed to physicians and nurses in the school health service throughout the state.

If the suggestions offered the State Medical Society by Dr. Smith Baker at the annual meeting fifteen years ago had been acted upon the story of the State Medical Library might be different today. Professional interest in the extension of library facilities and service which he tried to stimulate in the members then is just as necessary now if adequate provision is to be made for the state at large.

Quotation of a few sentences, still applicable to the situation, may not be amiss here. Dr. Baker said:

"For want of public medical libraries in many populous centers, the great majority of practitioners must needs expend for books and periodicals rather large individual sums, which many times * * * can be ill afforded. * * * The duplication of medical volumes * * * might much more serviceably be superseded by some plan which will make one copy of a work or periodical serve the entire professional community. * * * Assuming that this is so, it follows that the medical profession should henceforth devotedly see to it that before long a public medical reference * * * library shall be established in every city and village of any size in the state. * * * It seems rather strange that medical men everywhere outside Albany must rely upon themselves alone or upon some special arrangement with the State Library for each and every assistance in their professional extremity. As it is, the state is in no position to help the average practitioner very much in his professional reading. But there is no good reason why this should remain so. * * * What we affirm, and most emphatically, is that so far as the state is concerned, it is without question our debtor every day in a sum that would certainly be sufficient to supply us with all the books * * * which we could legitimately use in our work. * * * If the state does not yet see this, it is because we, the profession, have not yet made it clear. * * * It looks as if we medical men have been altogether too content to buy our own books and then leave them a worthless asset of our estates, instead of timely asserting ourselves as absolutely entitled to generous public recognition in such an important particular."

The service rendered by the State Medical Library has expanded and become much more liberal since Dr. Baker made these statements. In spite of the wiping out of its entire collection in the fire of March, 1911, the library is now probably double the size it then was. The freedom with which books and journals are loaned to individual physicians and the system of interlibrary loans in operation all over the state make medical literature much more easily and quickly available than ever before. More good medical collections have been built up in large centers, also, through generous private gifts, but with the backing and co-operation

of the profession as a whole, to secure adequate funds for books and trained assistants to care for them, it would be as practical to have in every desired community a working collection of medical books, administered from the central State Medical Library as it is at present possible to have law libraries in every court center and traveling libraries in every remote corner of the state. The need of the profession for plentiful literature and prompt service reverts to the need of the State Medical Library for funds with which to carry out these ideals, which have been in its intention for years. Until the profession wants these facilities badly enough to make a determined united stand for them the State Library will be helpless to extend its service in any great degree.

It must be borne in mind also that books alone do not make a library in these days. The largest and choicest collection in the world would be unworthy the name without those tools called catalogs and indexes with which to dig for their hidden treasures. The busy man of affairs has not time to acquire facility in the use of these tools, and to keep himself informed on the new publications in his field. It is here that the good offices of the trained librarian become necessary.

Not many years ago one of the councillors through his own personal efforts secured for the library the salary for an assistant librarian but relative values have so changed since, that upon her resignation less than two years ago, that amount proved too small to attract an assistant of any experience and only untrained helpers have been available since. The result is a serious handicap to efficient service and a most regrettable lowering of standards and ideals which the library itself is helpless to maintain without the co-operation of the medical profession for whose benefit the library exists. Will not the organized bodies of medical men throughout the state take some united action to put their library on the same basis of efficiency as those organized and maintained for other groups of business and professional men?

FRANCES K. RAY.

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INDUSTRIAL MEDICINE

THE ACTINIC RAY

STREPTOCOCCI DERMATOPATHIES

ARTICLE III

By C. B. WITTER, M. D.

Research Laboratory, General Electric Company
Schenectady, N. Y.

Symptoms present themselves according to the virulence of the attacking streptococci strain, and the anatomical level in which the infection manifests.

In the epidermis we find impetigo, in the corium erysipelas, and in the subcutaneous, plegmon or cellulitis.

Streptococci of various strains are readily destroyed by usual germicidal agents, and by direct exposure to ultra-violet rays. Peroxide of hydrogen, aniline dyes and other agents kill streptococci. Some of these are useful in various combinations for the therapeutical eradication of streptococci infection in the different layers.

Impetigo Contagiosa

An inflammation invading the epidermis characterized by the presence of superficial vesicles holding serum. They readily rupture, permitting the escape of the serum, which coagulates to form amber colored crusts loosely adhering to the skin. It results directly from the inoculation and presence of streptococcus pyogenes in the superficial layers of the skin.

The organism may be obtained in pure culture from the serum of a superficial vesicle. Several different groups of streptococci are described by various authors. The strains are differentiated only by the effect they produce on sugar bearing media. They do not invite the attraction of white blood cells, and if they are found, staphylococci are usually also found.

One celled vesicles develop in the epidermis in the corneum and their base, the prickle cell layer. On the floor of the vesicle, chains of streptococci are deposited and in the fluid serum that fills the vesicle there are found nuclei of disintegrated white blood cells, blocks of coagulated serum and clusters of staphylococci.

The deeper layers of the stratum malpighii and the stratum germinativum are edematous and contain some round cell infiltration. The

individual vesicles bulge until the stratum corneum ruptures, the serum coagulates and forms a crust.

There are several varieties of impetigo.

Circinate Impetigo

A rare type in which the lesions have comparatively little exudate, have a marked tendency to spread eccentrically and at the same time to clear up in the center, producing circinate lesions an inch or more in diameter, the borders of which are red, moist and edged by a fringe of cuticle sometimes undermined with serum or covered with a crust. The lesions tend to coalesce with each other to form gyrate patterns and may spread with extraordinary rapidity and may involve large areas.

Bullous Impetigo

The lesions develop into flaccid bullae varying in size from a finger nail upwards. The covering is thin and easily ruptured except on the palms and soles. It is most common in infants and is rare in older children. It occurs most commonly in hot damp weather.

Ulcerating Impetigo

In some cases the streptococcic infection penetrates the deeper layers of the skin, resulting in ulcerative lesions followed by definite scarring. It is due largely to a weakened state of resistance, brought about by malnutrition, from ill health, insufficient or improper food, defective innervation, or local cause, such as varicose dermatitis in adults, or the wet buttocks in infants. In such cases the initial vesicles dry up into thick dirty looking scabs at the periphery of which a phlyctenular ring may be detected and beyond this a dusky red, angry looking inflammatory halo. When the crust is removed a shallow ulcer is left covered with a diphtheroid membrane which extends down through the whole thickness of the epidermis and in which chains of streptococci can be found.

Intartriginous Impetigo occurs in situations where the skin is exposed to the friction of contiguous surfaces and liable to be moist from discharges. It is met with commonly behind the ears, between the buttocks, in the groins, between the thighs, under the breasts in fat women, and at the mid-thigh folds in infants. The lesions take the form of red, inflamed weeping surfaces at the edge of which the epidermis is generally raised up and undermined indicating the phlyctenular origin of the lesion.

The systemic condition is greatly improved in these cases by the use of ultra-violet radiation in which a stimulative erythema induced over the front and back yields excellent results. Treatments should be continued until the hemoglobin estimate shows a maximum to have been reached and maintained. If the treatment is to be local, remove the superficial crusts, then a regenerative erythema is used every other day until cured.

Erysipelas

An acute inflammation of the corium, generally streptococcic, characterized by redness and swelling in areas with a raised border and usually accompanied by febrile symptoms. It may gain admission through a skin abrasion or be caused by the lymphatics from deep seated focus.

HEAD INJURIES IN INDUSTRY

Read before the New York State Society of Industrial Medicine at their first semi-annual meeting in Albany, N. Y., March 17, 1922

By A. N. CROUCH, M. D.

Medical Director, American Locomotive Company
Schenectady, N. Y.

I come before you with no claims of discovery or any original theory in relation to the subject "Head Injuries in Industry," but I feel that with quite an extensive observation of these patients and with the conviction that the industrial physician can be better qualified in this branch of the work, that I may be justified in accepting the space which has been allotted to me on this program.

Treatment of head injuries I shall not discuss in this paper as any good text book can supply such information as the operator may need. It is of utmost importance that the industrial physician should *know* the signs and symptoms of head injuries whether they are mild or severe, by observing the signs and symptoms and how to deal with such important conditions.

It is a fact that severe brain injuries need not necessarily be associated with a fracture of the skull, that a positive X-ray (unless it discloses a depressed fracture of the vault) in no way lessens the effectiveness of the expectant palliative treatment, but that it frequently aids this medical treatment, by permitting the drainage of intracranial hemorrhage and cerebrospinal fluid through the lines of fracture into the subcutaneous tissues of the scalp where a hematoma of varying size may be formed or into the nasal cavity and most frequently into either auditory canal; intracranial pressure is thus lessened so that it may be possible to avoid mechanical operative measures to relieve the increased pressure whether due to cerebral edema or to hemorrhage. It is unwise to ever advise a sub-temporal decompression, because the X-ray has revealed a fracture (unless depressed), no matter how extensive the line or lines of fracture are. It is a fact, however, the more extensive the line of fracture the greater the drainage we get extracranially by permitting the intracranial hemorrhage and cerebral edema to escape through the line of fracture, and by this escape of fluid we avoid the seriousness of intracranial pressure and medullary compression. All brain injuries occurring in patients of middle age and adult life should be carefully diagnosed as most mistakes in diagnosis occur in the above class of individuals, where we may have associated other conditions such as chronic nephritis, alcoholism and arterio-sclerosis; it is in these patients that the acute "wet brain" occurs so easily and most frequently following cranial injuries apparently trivial in character and of not sufficient force to produce a fracture of the skull.

It undoubtedly often is true that a fracture of the skull exists in cases considered to be contusions only. In some cases the fracture may cause a secondary rupture either of the middle meningeal artery or of a brain sinus. In these instances the hemorrhage may produce secondary cerebral pressure.

Let me emphasize at this point that all cranial injuries are emergencies and we must at all times be in readiness to make a rapid systematic examination which is accurate and prescribe treatment which is correct.

There is no time to look up the literature and read up the case; in all cases of injury to the head accompanied by cerebral confusion even if temporary the patient should be kept under observation for twenty-four hours. If at the end of that time the patient is clear mentally and shows no paresis or focal symptoms, it may be fairly concluded that the danger period is past as it is exceedingly unusual for hemorrhage to develop after that time. Before that time there is always a possibility of serious hemorrhage. Having briefly discussed the subject of fracture of the skull it would be well to consider the subjects which are of such importance to our industrial medical director. I shall therefore consider the following important conditions of brain injuries, viz.: Signs and Symptoms of Brain Injuries, Hemorrhage, Laceration, Edema.

Later I shall take up that most interesting condition following brain injuries "Neurosis" and I shall not term this neurosis a traumatic neurosis but a "compensation neurosis."

SYMPTOMS AND SIGNS

In acute brain injuries the initial symptoms are few: the complaints of these patients are very difficult to obtain as most of them are unconscious for varying periods of time so that their subjective symptoms, if any, are not communicated. This unconsciousness usually occurs within several hours after the cranial injury, so that when the patients upon being aroused from this condition are in such a stuporous, drowsy condition and their mentality is so confused, that they have great difficulty in making known their complaints. If this consciousness is recovered sufficiently to make known their complaints, so as to be understood, then their chief complaint is headache, this varying in character and degree. A "splitting headache" is often complained of when the individual has not even been rendered unconscious.

After a head injury there is always a tension upon the dura, a result of the mild increase of intradural pressure from hemorrhage and more usually from a cerebral edema which may be slight or severe. The headache complained of is due to this tension. The headache may persist for several days gradually lessening as the increased amount of cerebrospinal fluid is absorbed by the cortical veins and sinuses, this occurring in mild cases. In severe cases a sub-temporal decompression may be necessary to relieve the headache.

Nausea may be another complaint, but too much importance must not be placed upon this symptom as any condition which produces shock will produce nausea.

LOCAL SIGNS

(1) *Ecchymoses*.—This sign may be found about the orbits and mastoid regions, hemorrhages from the nose and mouth and ears are frequently the result of local injuries and in no way associated with fracture of the skull.

(2) *Hematoma of the Scalp*.—A hematoma, especially if subpericranial, may easily simulate a depressed fracture, and if there is any doubt an exploration should be made to determine the presence of a bony depression.

(3) *Edematous tissue* about the orbits, ears and occipital region may be due to the escape of cerebrospinal fluid into the tissues about the above regions.

(4) *Bleeding* from nose, throat and ears. This condition should always be investigated under the most rigid asepsis to determine the source, as a slight abrasion or laceration of the external ear might produce bleeding from the ear; however, if cerebrospinal fluid is observed then we know that we must have a fracture to deal with. If we find a sub-conjunctival hemorrhage and also ecchymoses in the mastoid areas, appearing soon after accident and no local contusion being present, and especially if these signs appear one or less days after accident, then we must consider a basal fracture.

(5) *Shock*.—Any severe bodily injury may produce traumatic shock, particularly if traumatism is on chest or abdomen. In brain injuries the condition of initial shock is of utmost importance and danger. All efforts should be made to overcome a severe state of shock and let the patient alone until the initial shock is survived.

(6) *Pulse*.—A pulse rate of 120 or higher may be attained when we have shock, and which may continue for several hours. When the shock gradually disappears the pulse will become lowered either to its normal rate or lower, when, if it does, it reaches a point of 60 or lower, then we know we have a definite degree of intracranial pressure present; if the pulse drops below 50 we have a definite sign of medullary compression.

(7) *Respiration*.—Shock being present respiration is necessarily affected and may exceed 40 continuing an hour or more just after the accident: its rate of 20 to 24 comes quickly and remains so, unless we have definite signs of a high intracranial pressure which produces the Cheyne-Stokes type of breathing.

(8) *Unconsciousness*.—Hemorrhage, edema or an extensive laceration and destruction of the brain substance itself will produce a high intracranial pressure from which we get a prolonged total loss of consciousness with or without a fracture of the skull. In some patients with a high intracranial pressure, a feeling of drowsiness may occur and patient can be aroused by supra-orbital pressure: A slowly progressing hemorrhage or edema may produce within a period of several hours a "feeling of tiredness," drowsiness, stupor, coma and total unconsciousness.

(9) *Paralysis*.—A fracture of the skull rarely produces paralysis unless the fracture is a depressed one, over either motor tract, so that the underlying cortex is compressed and even lacerated if the middle meningeal artery is ruptured, thereby causing a large extradural hemorrhage, or overlying the same area may be a subdural clot, this occurring less frequently. If there is an edema of the motor area with or without a definite cortical laceration it may produce a paralysis. The third, fourth, sixth and seventh nerves which control the eyeball are often paralyzed in basal fracture producing ptosis, strabismus and facial paralysis.

(10) *Reflexes*.—The activity of the superficial and deep reflexes is greatly influenced by the degree of shock caused by brain injuries. The skin reflexes in a mild degree of shock cannot be elicited, while the deep reflexes are present although if we have an extreme condition of shock both skin and deep reflexes may be entirely absent. In recovering from shock the tendon reflexes return first then the skin reflexes. Recovery from shock and the stage of intracranial pressure taking place, the abdominal reflexes frequently appear depressed on the side opposite to the

cerebral hemisphere more compressed and the cerebral lesion: the Babinski reflex is absent reappearing later. If one side of the cortex has been damaged more than the other, the Babinski sign will persist on the side of the body opposite the more extensively damaged hemisphere and gradually fade away upon the side of the body opposite the less damaged hemisphere.

(11) *Pupils*.—The pupils are usually slightly enlarged when the degree of shock is mild and when severe the pupils are widely dilated. The reaction to light is correspondingly sluggish. If also unconscious the pupillary dilatation and the sluggish reaction to light are always increased.

(12) *Urine Examination*.—A complete urine examination should be made in each patient having a brain injury. In patients of middle adult age and older there are always the conditions of cardio-renal and arteriosclerosis to eliminate as a possible cause for the unconsciousness: in these patients there is the tendency for an acute onset of cerebral edema, even if the cranial injury is a trivial one. Basal fractures extending into the middle fossa and across the sella turcica, will frequently cause sugar to be temporarily excreted in the urine.

(13) *Blood Pressure*.—There is much dissension in the ranks of authority regarding the value of increased systolic pressure as an indication for decompression. It is claimed by some that shock which is almost always present in a varying degree tends to conceal the true intracranial condition. The high intracranial pressure necessary to raise the general blood pressure to any appreciable extent must reach a very dangerous stage of compression in these acute cases before its effects can be observed in an increased blood pressure. Again some argue that pulse pressure is a chief factor in blood pressure, this, as pointed out by Armitage and Wilensky, rises as the pulse rate falls. The pulse pressure is the true guide to recognize the amount of work the heart has to do in attempting to force blood to the vital centers. So it would seem that we would do well if we considered this phase of blood pressure, paying particular attention to the relation between the systolic and diastolic pressure: and, the relation of the blood pressure to the pulse rate.

(14) *Lumbar Puncture*.—The cerebrospinal fluid has a normal pressure of five to nine m.m. when registered on the spinal mercurial manometer: any increase over twelve m.m. may be considered abnormal (adults). By observing the cerebrospinal fluid pressure we may arrive at a conclusion as to whether the palliative treatment will suffice or whether it will be necessary for an early mechanical lowering of the high intracranial pressure by means of an operation. The method of treating these patients can be greatly determined by the use of the ophthalmoscope and spinal manometer of course always taking into consideration the general condition of the patient.

(15) *Ophthalmoscopic Findings*.—It is of utmost importance that every industrial physician should know how to use the ophthalmoscope as an aid in the diagnosis of cranial injuries. In occasional cases of severe concussion with and without a fracture of the skull it is possible for the ophthalmoscope to reveal a slight dilatation of the retinal veins or a moderate degree of intracranial pressure. Repeated examinations should be made in all patients having not only a dilatation of the retinal

veins but the added blurring and haziness of an edematous optic disk, determining by these repeated examinations the earliest signs of an increasing intracranial pressure. Intracranial pressure may become so high that the extracranial vessels in the scalp and especially of the upper eyelids become filled and dilated due to the blockage of the venous circulation intracranially. The prognosis is very poor in these cases, operation or no operation, patient dying in six to ten hours after injury. In these patients who do not show marked signs of intracranial pressure until three hours or more following the injury the prognosis is more favorable.

HEMORRHAGE

All cases of hemorrhage should be operated at once the diagnosis is made. It is not always easy to decide between laceration and hemorrhage or even edema and hemorrhage. In subdural hemorrhage as in laceration there will be blood in the spinal fluid; edema may be present in both. The small surface arteries and veins when lacerated may produce hemorrhage, which extravasates slowly over a large surface area of the injured hemisphere. The symptoms of subdural hemorrhage may not be pronounced for some time varying from a few hours to three weeks. We may first have unconsciousness (result of edema) followed by consciousness (relief of edema) again followed after a variable period (30 minutes to 24 hrs.) apparently dependent upon the site of hemorrhage by unconsciousness perhaps preceded by a short period of cerebral irritation (convulsions, spasms or increased reflexes). The second period of unconsciousness is due to increased intracranial pressure caused by the hemorrhage.

Symptoms develop from a few hours to three weeks in subdural hemorrhage and the time intervening has been termed the latent period of subdural hemorrhage. These symptoms are restlessness, headache and muscular twitchings on the opposite side of body.

In extradural hemorrhage it may be difficult to distinguish the lesion from a case of severe edema. In some cases of extradural hemorrhage there will be a clear spinal fluid with focal symptoms. It may be impossible to distinguish such a case of edema. One thing is clear, however, that in all cases of evident focal symptoms operation is indicated.

Venous Sinus Hemorrhage.—A hemorrhage from the venous sinus may be so rapid as to render the latent period too short for notice or may even be absent. The compression symptoms become rapidly pronounced, unconsciousness overtakes the patient, he has a full pulse and stertorous breathing and soon develops the rapid feeble pulse and Cheyne-Stokes respiration and paralytic symptoms, usually meaning a fatal issue in cases not operated on.

Middle Meningeal Hemorrhage.—The intracranial complications from the wounds of this artery are nearly always delayed from the time of injury so that this interval is a sign of hemorrhage. The firm attachment of the dura to the bone renders the pressure displacement of the dura slow and the blood forces its way upward following the anterior branch usually over the pre-Rolandic area causing the focal symptoms of motor disturbance.

As intracranial hemorrhage takes place and compression symptoms become apparent the respirations change from the slow shallow type of concussion and become even slower, deep and labored, a change which is

fairly constant. If pressure is not relieved Cheyne-Stokes breathing supervenes and medullary collapse becomes imminent.

The condition of the pulse is probably the most constant diagnostic factor we have, upon which fact all authorities seem to agree. The rapid fluttering pulse of concussion gradually drops to normal, then in the event of hemorrhage with cerebral compression it falls lower, the change being gradual and slow. No doubt if it becomes full and strong, this type of pulse has very often deluded the anxious watcher and cheered him up considerably. Inasmuch as the normal pulse rate varies greatly in different individuals we must ascertain if possible what their pulse rate is ordinarily and make our judgment accordingly.

LACERATION OF THE BRAIN

Certain injuries may show, in addition to the edema, an actual laceration of the brain; the results of such laceration are very serious, often fatal. A lacerated brain may be accompanied by a fracture which may be simple or compound. The recognition of these cases is not always simple, often being confused with severe concussions. The hemorrhages vary from punctate to very extensive, smashing and fatal crushes. These lesions may be diametrically opposite the point of application of the violence. The cases of laceration are nearly always accompanied with marked edema. The determination of laceration is best made by spinal tapping. In pure edema the fluid will be clear and the temperature will be low: in laceration the spinal fluid will be blood tinged and within 24 hours the temperature will rise and remain high. In both edema and laceration the pressure of the spinal fluid may be high. Many if not most cases of laceration die but most cases of edema recover without operation—it is not always possible to differentiate.

EDEMA OF THE BRAIN

Edema with its resulting increase of intracranial pressure is the most common cause of brain symptoms. Edema alone is present in nearly all cases of concussion and as figures show, nearly all recover spontaneously. In edema alone the spinal fluid is clear, not blood tinged, one of the most important symptoms: the temperature remains low. In cases of pure edema operation is very rarely called for. Seldom is the edema so extreme as to call for an operation to relieve pressure. In cases of persistent pressure, accompanied by a persisting mental confusion, a decompression may be desirable but these cases are rare, and no operation should ever be performed on improving cases.

The pathology of traumatic cerebral edema is both obscure and puzzling. It may be similar to a localized traumatic edema such as occurs elsewhere in the body.

COMPENSATION NEUROSIS

There are a large number of applicants appearing before the industrial commission for further relief owing to an increased disability. They have meanwhile been under the care of insurance physicians and other physicians. These men are still disabled or think they are. Dana claims about 15 per cent of these applicants complain of nervous symptoms and a great many of these men have received wounds of the head or have fallen. The method of compensation by which the patient receives a weekly allowance during the period of disability certainly seems to act as

a stimulus to the prolongation of disability in those with a pretraumatic nervous instability. Such patients, I believe, are influenced by relatives or others, to believe that head injuries produce incurable effects so that the problem becomes one of great intricacy. In other patients between the fear of becoming helpless if work is resumed, and compensation stops, and the certainty of state aid if disabilities continue, there is created a condition intolerable to the patient. The situation is often met by continued invalidism. Most of these patients are dull, extremely ignorant, and do not appear to have any organized subconsciousness, much less a directing complex or mechanism of a subconscious defense. They are uncomfortable, suffering, apprehensive, hopeful of getting a sum of money or perhaps they are enjoying life without work, as a great many do while receiving their weekly compensation of \$20.00 and \$10.00 from their society. The above individuals are typical of those suffering from that dreaded foreign disease, compensation neurosis.

The problem of how to deal with these neurosis cases is difficult for the physician, for industry and the industrial commission. These compensation neurosis cases, as stated above, are usually dull and ignorant—a fertile field to develop suggestions offered by good physical minds, and also by minds whose sense of moral obligation is lost. The ever present thought is that they are getting worse, as they claim a loss of memory and their friends inform the patient's family that he "acts funny." Examination shows no specific evidence of any localized brain injury.

Why are these symptoms of head injuries always exaggerated? Bear in mind the amount of money being received weekly and also remember that many expect to be pronounced more disabled and receive a lumpsum award which rarely is more than a few hundred dollars. Assuming that their case has been settled and a lump sum award has been made, does that cure the individual? Yes, as long as his money lasts, so that when the award has been used, his symptoms reappear and in a much more exaggerated form, and he comes before the commission for more money. What shall we do with these compensation neurosis cases? There must be some remedy, which should be reliable, as these patients are going to become more numerous and more difficult to handle, as they come in contact with some lawyers who can be nicely termed "compensation chasers," just as we used to have our ambulance chasers. My conclusions are that there should be a modification of the compensation law, whereby a council of three expert neurologists, giving an unbiased opinion, would be final with the patient, compensation commission and insurance carrier.

CONCLUSION

In conclusion I wish to say that the thought which I hope to emphasize in this paper is that all serious head injuries call for emergency measures and prompt first aid treatment. Every industrial physician should be prepared to give the proper first aid in these cases. While it is not my expectation to arouse an ambition in the minds of the industrial medical man to be a Cushing, Fraser or Sharpe, or many others of deserving fame, I feel that we should qualify in technic of head wound disinfection and to know the signs and symptoms of brain injuries, whether mild or severe, and to know just what measures may save life and prevent if possible some cases of compensation neurosis.

ALBANY MEDICAL ANNALS

THE MANAGEMENT OF PLACENTA PRAEVIA

REPORT OF CASES

Read before the Rensselaer County Medical Society, February 14, 1922

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It can be said that placenta praevia while not a common condition may be one of the most formidable which we are called upon to treat. Statisticians differ as to its incidence, but the fact remains, once called upon to care for a case of this kind, with severe hemorrhage, the memory of the experience is apt to linger for a long period of time.

As this paper has to do with the management of placenta praevia needless definitions and detailed recitation of predisposing factors and minute pathology may be eliminated. Brevity can be assured and the requirements of the topic entirely met by considering the subject from the clinical aspect alone.

For our purpose we can assume that in placenta praevia we have an abnormal location of the placenta, either of lateral, marginal, or central implantation, the partial detachment of which gives rise to bleeding, generally painless, usually occurring during the last three months of pregnancy. This bleeding may vary in severity from a slight show to a fatal flooding. While it is said most cases occur during the last three months, Shears reports a case with fatal termination occurring at the fifth month; and there is ample reason to believe many cases of early abortion, associated with severe hemorrhage, may be attributed to this cause.

A review of the available literature on the various methods of treatment carried out by recognized authorities shows very little difference in the results obtained. The maternal mortality under conservative treatment averages about eight per cent; and the foetal mortality, something in excess of fifty per cent. By some this is stated to be as high as seventy per cent, while others give a more conservative estimate.

Efforts to reduce foetal mortality by more radical procedures, while apparently attaining the result desired, have almost invariably brought about a larger maternal death rate.

All forms of recognized treatment have their proponents and opponents. Norton, of Philadelphia, while an advocate of Cesarean section in selected cases, believes simple tamponade to be the conservative method of choice, and quotes a series of cases successfully treated by this method. Kosmak advocates the use of bags, placed extra-ovularly and shows a reasonable measure of success. Yet in the bag method Williams, DeLee, Cornell and others favor placing the bags intra-ovularly. If the cervix is dilated or easily dilatable, most agree simple rupture of the membranes may be all that is necessary. Bipolar version, after the manner of Braxton-Hicks, gives a low maternal mortality and the highest foetal death rate. Yet it is the method of choice in the Schauta clinic in Vienna. Accouchement forcé, favored by a few, is condemned by the majority. Finally Cesarean section in selected cases finds champions in such authorities as Davis, DeLee, Cornell, Veit and Bar, only to be condemned by Williams, in this country, and Naegel, Byres and Cameron abroad.

The need of careful investigation in every case showing bleeding at any time during pregnancy cannot be too strongly emphasized. Action is imperative, yet nowhere in the whole field of obstetrics do we find a better place to apply the axiom that "the successful obstetrician is one who can maintain an attitude of masterly inactivity." An examination must be made to establish a definite diagnosis, but with a full appreciation of the danger involved. For it must not be forgotten a single vaginal examination in this condition has been followed by fatal hemorrhage. Once a diagnosis is made each step should be actuated by a definite reason. Nothing should be done that is not a necessary part of the treatment. Every effort should be put forth to minimize hemorrhage; a small

amount of blood lost may determine the difference between success and failure. Various factors will influence the treatment to be instituted: the skill and training of the attendant; the period of gestation, whether before or after viability; the physical condition of mother and babe; the environment in which the procedure selected shall be carried out must all be considered, and it must not be forgotten that the wishes of the parents, aside from any other reason, will at times influence the action to be taken.

But what shall be done in a given case?

At or near term with the child alive and the cervix dilated or easily dilatable it will merely be a question of which method to employ. Rupture of the membranes may be all that is necessary, permitting descent and engagement of the presenting part; the delivery being accomplished as for the same presentation without complication. Tamponade may be resorted to either as a temporary expedient or to facilitate dilatation, following rupture of the membranes, the natural forces being aided by quinine, ergot, small doses of pituitrin or the application of forceps if it seems advisable. Since dilatation by rubber bags offers a lower foetal death rate than the Braxton-Hicks version, with practically no difference in the maternal mortality, the selection of this method would seem to be proper when a choice of the two is considered. When placed intra-ovularly there is greater probability of controlling hemorrhage and certainly dilatation will be accomplished just as well. Once the cervix is completely dilated, if hemorrhage seems reasonably controlled, the labor may be permitted to proceed as in the foregoing, such other aids being utilized as seem necessary or desirable. When bags are used an effort must be made to puncture the membranes lateral to the placenta. Once filled moderate traction may be made to firmly press the bag against the placental site. Care must be exercised as the softened cervix will tear easily. This of itself may give rise to fatal hemorrhage or at least the amount of blood lost from this source may be the deciding factor against the patient. If this method is employed, the physician must be in constant attendance until delivery is accomplished, otherwise the bag may slip out of the cervix into the vagina and permit severe concealed hemorrhage to occur.

If it is evident the baby is dead when the case is seen, bipolar version may be the method of choice for obvious reasons.

A firm and resistant cervix may require other treatment. Dilatation by branched dilators is now an obsolete procedure, while vaginal hysterotomy is no longer employed. It is here as well as in certain cases of central implantation of the placenta that classical Cesarean section has been advocated.

If the patient is seen before viability of the child, one of two courses may be followed. Either it may be assumed the baby is doomed and steps taken to empty the uterus immediately, or an attempt may be made to carry the case to term. If the latter is the course selected, it must be followed with a full appreciation of the responsibility involved; and with the assurance that there are means at hand to meet all emergencies that may arise. The patient, if possible, should be in a well-equipped hospital or at least in close proximity to one. She should be kept in bed during the greater part of the time and closely watched. Short rest periods out of bed might be permitted at stated intervals. The blood lost, if large in amount, to be made up by an occasional transfusion. Suitable donors should be selected and should be within easy call. If it is found the procedure proves too dangerous to the mother, through repeated severe hemorrhages, with no hope of delivering a living child, this plan may be abandoned at any time. If successfully carried to term or nearly to term and it is evident the baby is strong and able to stand the traumatism incident to passage through the birth canal, any of the conservative measures discussed may be instituted.

If at this time the infant shows signs of weakness, slight foetal movements or rapid heart sounds, or if there is a centrally implanted placenta, Cesarean section may be a justifiable procedure, as well as in those cases seen shortly after the period of viability has been reached, when it is evident the chances of delivering a living child through the natural channels are very slight.

My experience with placenta praevia in private practice has been limited to three cases. Two of these were seen for the first time at term, the third having been under my care from the fifth month.

CASE I

A primipara, age, 26. Seen at term with rather sharp hemorrhage. Pains were regular and hard. Examination showed a marginal placenta

prævia. The cervix was almost completely dilated. Half a c.c. of pituitrin was given and the membranes ruptured. There was an immediate engagement of the head with complete control of hemorrhage. Labor terminated promptly, the baby living.

CASE II

A multipara, age, 30. Entered a local hospital at about term with severe hemorrhage, a concomitant of the onset of labor. The os was not dilated. Vaginal tamponade increased the force of the pains, and on removal a few hours later dilatation was found to be about two-thirds. Half a c.c. of pituitrin was given and the membranes ruptured. Labor progressed satisfactorily, but as there was some slight intermittent hemorrhage, with acceleration of the maternal pulse rate, concealed hemorrhage was feared, forceps were applied and the labor terminated, the baby living.

CASE III

A multipara, age, 38. Her first pregnancy had terminated prematurely with delivery of twins, which lived only a short time. Following a long walk April 19 of last year, when about five months pregnant, intermittent pain unaccompanied by bleeding came on during the night. As simple sedatives did not stop the pain, morphine was used in sufficient dosage to bring relief. During the night of the 21st—twenty-four hours later there was some bleeding. A few hours later a large clot came away. Placenta prævia was suspected, but no internal examination was made at this time. As in this case it was highly desirable to deliver a living child it was decided to temporize. The plan selected was that of Cornell, outlined in the October, 1920, number of the *Surgical Clinics* of Chicago. Examination showed compatibility of the blood of the patient with that of the husband and a brother. Hence two suitable donors were available in case transfusion became necessary at any time, and equipment was kept in readiness for use at a moment's notice, even at home if need be.

As the patient was a trained nurse and as there was a trained nurse in attendance, it seemed reasonable to permit her to remain at home for a time.

Following the hemorrhage May 21, the patient remained in bed ten days and then was permitted to move about. May 26 there was severe painless hemorrhage which subsided with rest; but there was a tendency to recurrence when the patient was up and about. Accordingly she was kept in bed continuously from May 31. There was slight hemorrhage almost daily until June 14. Early in the evening of June 14, the greatest loss of blood occurred.

As there had been several severe hemorrhages, the last the worst of all, and as the loss of blood was becoming a daily occurrence, moreover as the child, theoretically at least was now viable, the seventh month having passed, it was decided to take action to terminate the pregnancy.

Temporary vaginal tamponade was done to prevent hemorrhage during removal to the hospital. Examination at the time of the tamponade led to a diagnosis of placenta prævia centralis. With this type, it seemed the choice of treatment lay between dilatation with bags and Cesarean section. Cesarean section was decided upon for the following reasons:

The cervix was not dilated; extra-ovular placing of the bags could hardly be expected to control hemorrhage, while the intra-ovular method entailed probable perforation of the placenta with subsequent foetal hemorrhage and death, which we hoped to avoid; the baby's heart was strong, foetal movements were active, and it was hoped with a minimum of traumatism the baby might live. At the same time the danger to the mother would be no greater than in delivery from below.

Abdominal hysterotomy was done that night and a central implantation of the placenta found.

Because of the position occupied in the lower segment, the placenta had the appearance of a huge mushroom, somewhat conical in form, with a spot of darkened tissue placed slightly eccentrically, indicating the portion which had covered the internal os.

The baby was revived with difficulty; and in spite of the efforts of the consultant called to care for it, lived only about four hours.

The convalescence of the mother was uneventful.

As the systolic blood pressure never went below 100 mm. and as there was no other marked effect as result of blood lost, transfusion seemed unnecessary and was not done.

In conclusion I am frank to say I do not believe my limited experience gives me the right to formulate rules for the care of placenta praevia—far from it—but the experiences of others teach certain things, among which the following are outstanding:

1. "A woman's chances of recovery from placenta praevia rest chiefly with the man who sees her first."
2. To be constantly alert when hemorrhage of the painless variety occurs at any time during pregnancy.
3. To be prepared to supply blood by transfusion, if time allows; hence to hold donors in readiness for call at any time.
4. To utilize such methods as seem applicable to and indicated in a given case rather than attempt to make the case applicable to the treatment.
5. Finally, keeping in mind that under nearly all forms of conservative treatment there is foetal mortality in excess of fifty per cent, justifying, under certain circumstances, a more radical procedure which can be expected to materially reduce foetal mortality with no appreciable increase in the maternal death rate.

A PRACTICAL CONSIDERATION OF THE ANTRUM OF HIGHMORE

*Read at a Meeting of the Washington County Medical Society at Cambridge,
N. Y., and before the Scientific Dental Study Club at Albany, N. Y.*

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The maxillary sinus or antrum of Highmore, being the most frequently diseased of the nasal accessory sinuses, and because of its location over the teeth, is of equal interest to the dentist and the rhinologist. Up to Hajek's time little was known of a practical nature regarding the sinuses, but dating from his being an assistant in Chiari's clinic in Vienna over thirty years ago, our working knowledge of the sinuses has increased by leaps and bounds. The sinuses draining into the nose are ten in number, five opening into each nasal cavity.

We like to divide the sinuses into two groups, external (or easy access group) and internal (or difficult access group). The external group is composed of the frontals, the antrums and the anterior ethmoids. The internal group is composed of the sphenoids and the posterior ethmoids. The external group empty into the lower part of the nose between the inferior and middle turbinate bones and the interior group empty into the high and distant part of the nose between the superior and middle turbinates.

The function of the sinuses is not known. They are filled with air and lined with ciliated epithelium, the same as the nose, so if one has an acute cold in the head there is usually an inflammation of the sinuses.

The antrum or maxillary sinus is the largest of the sinuses and more often diseased. The antrum is a large cavity in the superior maxillary bone and can be likened to a three-sided pyramid, the base being the lateral wall of the nose, the tip the zygomatic process and the three sides being the orbital floor, the alveolar process and the canine fossa. The antrum may be large or small and occasionally it is absent. A large antrum is situated over the first bicuspid and second molar, a small antrum over the second bicuspid and first molar. The average capacity of the antrum is fourteen to fifteen c.c.

In acute rhinitis generally all the sinuses are involved, and as the cold in the head clears up the sinuses clear up also, but in many cases an empyema of the antrum results due to the fact that the ostium or natural opening of the antrum is at its highest point and cannot drain off as easily as the other sinuses.

One fact cannot be made too emphatic, and that is, that empyema of the antrum alone cannot cause bulging or swelling of any of its bony walls.

The cases of antrum empyema seen in our work were ten per cent due to caries of the teeth and ninety per cent to influenza.

For empyema not due to the teeth, needle puncture under the inferior turbinate and washing the antral contents out by the natural opening, is the conservative treatment. One to ten washings will suffice to clear up the ordinary acute case. (It must be borne in mind that the antrum may, in rare cases, act as a reservoir to the frontal sinus.) A case that does not respond to this treatment is usually chronic and it may be necessary to make a permanent opening in the lateral nasal wall. The technique of antrum washing, we owe to Adalbert Heindl of Vienna.

If upon washing out an antrum, there is a foul odor, we know that it is from a tooth infection. All infections from the mouth give a foul odor. Sometimes after washing out an antrum of this character it is necessary to open the windows for fifteen or twenty minutes. Cases of this character are sent at once for X-ray and then to their dentist to remove the cause. If, after the extraction of the offender, pus persists in the nose, several washings may clear this up, and if not, it shows the mucous membrane is too badly diseased to respond to conservatism, so a semi-radical or ultimately a radical operation is done.

The X-ray is of great value in dental surgery and sinus work, but for the average antrum case that comes to the office, it is not necessary. There is or there is not pus in the antrum. The needle puncture, in skilled hands, causes no pain and for diagnosis is absolutely reliable. If there is a question of other sinus involvement then the X-ray is necessary. Transillumination is picturesque but uncertain as to diagnosis.

A dental abscess is painful to people who have a great amount of thick, spongy bone between the root of the tooth and the antral cavity, as the pressure at the root of the tooth is very great until the pus breaks into the antrum; while thin bone or only mucous membrane separating the root of the tooth and the cavity does not cause so much pain as the breaking through is rapid with but little pressure. Often nerves lining the mucous membrane of the antrum run into the roots of the teeth and, being so closely related, considerable pain would probably result.

Pus can be present in the antrum and the patient may not be aware of it. Many times the patient comes to the office saying he notices a discharge of pus when the head is *bent down*, this being due to the ostium of the cavity being *below* instead of *above* when in this position.

An important point to remember is that the facial wall is usually concave—it may be very much so. If it is greatly concaved, and you should trephine through the second bicuspid, the instrument would come out in the mucous membrane of the canine fossa, so it is always wise to bear this in mind and judge of the thickness of the wall and the shape of the concavity.

Two varieties of cysts are found in the antrum: (1) mucous membrane cysts and (2) dental cysts.

1. The mucous membrane of the antrum contains mucous glands. The opening of these glands become plugged, but still the glands continue to secrete and a mucoid cyst results. No symptoms result from this condition. It is only discovered by accident.

2. Dental cysts (Dentigerous cysts). These are of two kinds, congenital and inflammatory.

Congenital cysts. The teeth originate from the mucous membrane of the mouth by the formation of a sac which is later cut off at the neck. From this sac there now develops another sac, the former for the milk tooth, the latter for the permanent tooth. The small sac may continue to grow and the result is a congenital cyst which grows in all directions, always in the line of least resistance. It continues to enlarge until rupture into the antrum, nose, or mouth occurs.

The growth goes on painlessly and is not noticed until the swelling is great. If there is swelling under the inferior

turbinate bone it may contain cholesterol crystals which confirm the diagnosis. The swelling may appear in the hard palate or in the canine fossa and if it ruptures here a fistula over the canine tooth may result. Bulging of the anterior antrum wall is the most important diagnostic point because, as stated before, empyema of the maxillary sinus alone never causes this condition. A parchment-like crackling of anterior wall may be present. Puncture with a large trochar needle where the swelling is most prominent if a cyst be present, will be followed by the return of the injected water from the same opening and not through the nose. Examine for squamous epithelium which is the epithelium of the mouth and its presence shows that the cyst has broken through into the antrum by way of the mouth.

The inflammatory type of dental cysts, due to a dental root abscess, grows in the same way. When we puncture we find a flow of pus immediately, by way of the needle.

To cure these conditions only a radical operation will be of benefit. The entire anterior wall must be resected from the canine fossa.

It is astonishing to find the number of people with pus in an antrum, who have been treated for neuralgia, neurasthenia, indigestion, etc.

SYMPTOMS. Acute Empyema. Following a head cold there may be a feeling of pressure over one side of the face; it may be bi-lateral. Pain may or may not develop. The pain is usually over the antrum and over the orbit. The secretion in the nose may range from serous to purulent. There may be general disturbances but usually not enough to be noticed.

Chronic Empyema. It may be discovered only by accident. If the pain happens to be present it may be over the superior maxillary bone of that side or it may be neuralgic in character shooting over the infra-orbital region or over the orbit. The pain may at times be almost unbearable. The secretion from the nose may vary as in the acute condition.

The following cases, briefly given, were chosen from our antrum cases to show what conservative treatment can do. The history given is in the patients' own words as nearly as possible.

Miss P., age, 18. Continual cold in head for four months. Has dropping in throat, bad nasal discharge, sleeps with mouth open and talks through nose. One of the girls at her table in the collar shop told her she had sinus trouble. Needle puncture showed the right antrum full of muco-purulent secretion. Left antrum was negative. Fifteen washings cleared up the condition. She came to us March 20, 1920, and up to the present time there has been no recurrence.

Miss B., age, 48. Pain over upper teeth and around eye on left side of face. Nasty discharge from nose with soreness and cramped feeling in nose. This had been going on for several months. Removal of several teeth, some time before, from that side failed to relieve the condition. A great amount of thick yellow pus from the left antrum was obtained. Eight washings cleared up the condition. This patient came March 31, 1921, and was highly nervous, thin and haggard looking. The clearing up of the sinus condition brought about in her case a complete transformation.

Mr. G., age, 30. April 18, 1921. Following a cold in the head, the patient developed a severe pain over the left side of the face, radiating over the eye of that side. No pus was seen but a tentative diagnosis of antral empyema was made. Needle puncture, to our astonishment, showed a normal antrum. The patient was given sedatives and told to come the next day. The pain had not been relieved, so just as a matter of routine the right antrum was washed out. This was full of pus. Four washings cured the condition.

Miss R., age, 30. A teacher in a well known private school. For over a year this patient had been gradually failing in health. She had developed a poor appetite, had lost weight, was anemic, her energy and efficiency had become seriously impaired and altogether she had become much worried and depressed over her condition. During this time the patient had noticed a slight sense of fulness over the right side of the face. On examination her right middle turbinate was found swollen and puffy. Ethmoidal disease was suspected and the removal of the middle turbinate contemplated. The antrum was not looked into at this time because of the patient becoming faint. In a few days the right antrum was punctured and it was full of a foul-smelling pus. She was sent to her dentist who found an abscess at the roots of the first molar and second bicuspid of that side. He removed them. Several washings cleared up the antrum. The patient rapidly improved both mentally and physically and has a different outlook on life. The middle turbinate no longer being bathed in pus became normal.

Miss S., age, 27. February 23, 1920. Patient had grippe and five days previous to seeing us had developed pain over and around left eye, over the teeth and into the left ear. A slight amount of pus was found in the left antrum. After two washings the symptoms abated. It is an interesting point that the patient, some time before we saw her, complained so much of pain and became so nervous, her sanity was seriously in question so

much so she was sent to Pavilion F of the Albany Hospital for observation. No mental disturbance being found she was sent home. We understand that she subsequently spent several weeks in a sanitarium in Saratoga. We saw the patient again last fall and she complained of the same symptoms as on her previous visit. The antrum was negative. We sent her to her physician for X-ray. The sinuses were negative but an undescended molar was found. The patient went to her dentist in Albany and it was removed. We thought we had the root of the trouble. For a short time the symptoms seemed to abate but they returned as severe as ever. When the molar was removed her dentist told her that she might possibly have trouble from one of the bicuspid as it appeared abscessed. He removed this and found it penetrated the antrum, being covered only by mucous membrane. Pus was found in the antrum again and after several washings all discomfort disappeared. At no time was there much antrum involvement in this case; all pain being practically due to the teeth alone.

In conclusion. Antrum disease is more common than is suspected. One should be very suspicious of the neuralgias and any feeling of pressure and fullness in the head. During the year we find many cases that have had teeth removed with no relief from pain. Invariably we found pus in the antrum. A cold in the head, oftentimes one that the patient is hardly conscious of, may cause antral empyema. Considering the number of antrum cases that we see each year in our office practice, we think that it would be wise if the dental surgeon is not absolutely sure that there is a root abscess, to have a rhinologist wash out the antrum, thus conserving the teeth. Each of us has his distinct field, but in co-operation we will go far.

A CHAPTER ON SANITARY DUTIES, AS OBSERVED IN THE HISTORY OF ALBANY, FROM 1859 TO DECEMBER 31, 1921

By ALBERT VANDER VEER, M. D.

Albany, New York

(Concluded from July ANNALS, p. 328)

It is recommended that milk stations be established in different sections of the city during the summer months, for sale of milk, of proper grade, to the poor of city, for infants. It is very evident that a nurse is needed in the Bureau of Health for vaccination and examination of children, male and female, for work certificates, also a nurse to visit cases of communicable diseases, as well as Tb. This bureau has only the services of one nurse, detailed from the Guild for the Care of Sick, for Tb. work, who serves without compensation from the city. Recommend that a nurse be employed giving her entire time to Bureau of Health. There were 2659 inspections made in the plumbing department in 1902, and 275 plans approved; in 1913 there were 4712 inspections made, and 802 plans approved, with the same number of inspectors for each year. Recommend that another plumber be appointed in this department. Total deaths from all causes, during the year, 2025. Of living Tb. cases, November 1, 1914, there were 348. Total deaths from this disease 283, non-resident, twelve, making 271 for Albany. Statistics of all inspections in Bureau of Health found in body of their report for present year.

1914. Personnel of Bureau of Health the same.

One thousand five hundred and forty-nine cases of communicable diseases reported—317 more than last year, due to physicians promptly reporting the various diseases, they now being paid twenty-five cents for each case reported. No epidemic of any kind during the year.

January, 1915. Scarlet fever developed in a banking institution in the city. There was a prompt investigation, employees examined, and a case, in active stage, discovered among them. It was immediately isolated, which resulted in suppressing a positive epidemic. The Sanitary

Code has had a fair trial, and found of immeasurable benefit to Bureau of Health, as well as general public. Systematic inspection of barber shops now being carried out over entire city. A new set of rules and regulations adopted, and, with existing laws, relating to health, printed in book form. Privy vaults abated as fast as water and sewer connections placed in streets. Of sixty-nine remaining last year, with no legal right to exist, sixty-six have been abated this year.

Dr. McCord, Health Director of Schools, has been of great benefit to the city. Children released from quarantine, for scarlet fever and diphtheria, are now examined by the Bureau of Health before being allowed to return to school. Number of examinations and re-examinations about 1000. A contract made with the Bender Hygienic Laboratory for all bacteriological, pathological and biological examinations and chemical tests is resulting in great benefit to the city, as well as Bureau of Health. Work of the milk inspector rapidly increasing: twelve new dairy barns erected; sixteen old barns remodeled; twenty new milk houses built, nine remodeled, as a result of the rigid milk inspection, and City of Albany receiving better and cleaner milk. During the recent outbreak of foot and mouth disease special investigation was made, in co-operation with the State Department of Agriculture. No evidence of cases in dairies supplying milk to Albany, undoubtedly due to strict quarantine measures. Again recommend that an assistant milk inspector be appointed. The same in regard to milk stations for the sale of milk for infants during summer months. Also that garbage collection be extended over entire city, and appointment of Tb. nurse, as well as for examination of communicable diseases, and to assist in vaccination and examination of children for work certificates. Recommendation for assistant plumbing inspector, with automobile for same.

Bender Laboratory reports much increased: Widal and other statistics of work of Bureau of Health found in tables in body of report.

1915. Mayor, Joseph W. Stevens. Dr. Arthur Sautter, Health Officer; Dr. Fred N. Guyer, Deputy Health Officer; Dr. Charles K. Winne, Jr., Medical Assistant; Dr. John J. A. Lyons, Contagious Disease Inspector; John F. Miller,

D. V. M., Milk Inspector; William G. Van Zandt, Chief Clerk; Edmund S. Hazeltine, Senior Clerk; William B. Hogan, Clerk; Annette Coplon, Stenographer; Dorothy Broeffle, Nurse; William Brownlow, Chief Plumbing Inspector; William Smith, Plumbing Inspector; William B. Larkin, Clerk; Daniel S. Wasserbach, Sanitary Inspector; Benjamin H. Nichols, Sanitary Inspector; Thomas F. Burke, Sanitary Inspector; Henry C. Pfeiffer, Market Inspector; G. Henry De Rouville, Garbage Inspector. Health Physicians: Dr. Michael D. Stevenson, Jacob Drooz, George W. Papen, Jr., William C. Rausch, Philip C. Hacker, Morris Bellin, Harry H. Drake; Leonard Schrauer, Keeper of Smallpox Hospital.

During 1915-16 there were 3682 cases of communicable diseases, an increase of 2133 over last year, corresponding time, November 1, 1915, to November 1, 1916. There was a decrease in scarlet and typhoid fever, diphtheria and chicken-pox, but slight increase in whooping cough, with one more Tb. case. There were twenty-four cases of acute anterior poliomyelitis reported during the year, 1764 cases of measles, and 572 of mumps. Only one disease in epidemic form, *i.e.*, measles. The Bureau of Health did a great amount of work in controlling this contagion. The first epidemic measles in the city since the establishment of the Sanitary Code, State of New York, and making disease a placardable one. Much increased labor required of Bureau of Health, but excellent co-operation with Dr. McCord, and mutual benefit to both departments very manifest. The Bender Laboratory continued to render very efficient service and their work increased to a great extent during past year. Recommendations for milk stations to be established for infants, during summer months, for infantile mortality in Albany entirely too high. Instead of city devoting one week to "clean up," a daily all year round method would be more conducive to better sanitary conditions. In 1906 the Contagious Diseases Hospital was opened, but incompleated. Three-fourths of the second floor was left unfinished, so that during epidemics the capacity of this institution is taxed to the utmost, and patients have to be refused admission. Would recommend that the building be completed when our municipality will rank with the best equipped in the country, for the care and control of communicable diseases. There were 9000

cases of acute anterior poliomyelitis reported in New York City, in the state approximately 4000. The Health Officer did not quarantine travelers passing through Albany, but was very rigid in examining all children from infected districts, keeping them under observation two weeks. There were 2000 examinations made of playgrounds, orphan asylums, business colleges and other institutions, in order to exclude all persons from infected districts. Three thousand certificates for travel were issued. Sunday schools and vacation schools were asked to remain closed until advised to open by Bureau of Health. Upon request of this department the Commissioner of Public Works ordered all streets in the lower sections of the city to be flushed. This incurred a great amount of work, both medically and clerically for the Bureau of Health, but hotels, interurban travel, and business in general, not hindered, while the actual expense of the Bureau of Health to the municipality was \$138.30. This did not include maintenance of cases at the hospitals, which was provided for by the Commissioner of Charities. The first case of acute anterior poliomyelitis developed in Bradford Street, September 4, 1916. The public schools were closed until October 1, and every aid given the Bureau of Health. The Health Officer issued but one order, all other requests being complied with, thus making issuance of orders unnecessary. The efficiency of the Bureau of Health greatly increased during the year by the appointment of a nurse and another district physician.

The excellent work performed by the Health Officer, Dr. Sautter, during this epidemic, received the commendation of all sanitarians who came into possession of these facts. He not only had the cases well in hand, and isolated, but the business interests of the city were also protected, and in no way was there any loss, due to interference with travel.

1917. Mayor, Joseph W. Stevens. Bureau of Health the same, with Benjamin H. Nichols, Sanitary Inspector, appointed June 16; Sanitary Inspectors, Daniel Wasserbach, Thomas F. Burke. Health Physician, Dr. Drooz, resigned September 15, and Dr. Abraham Ball, appointed September 18.

Two thousand four hundred and seventy-four cases of communicable disease, a decrease of 1208 over previous year.

City of Albany free from disease in real epidemic form. Nine cases of smallpox, first two occurring in same family, May 18, the infection coming from an uncle, from Cleveland, who had the disease, but remaining in Albany only a short time, and leaving for parts unknown. Usual precautions taken to prevent spread of the disease. May 20, another case reported, but source could not be traced. Four other cases in same family from direct exposure. June 3, a patient from Green Island, at request of Dr. Silcocks, Health Officer of Cohoes, removed to our smallpox hospital for treatment, but this case did not arise in Albany. October 23, case received from shops at Colonie. All precautions taken, and no more persons were infected.

Tb. again a great health problem of today, and necessary for further measures to be taken in effective manner to control plague.

April 1, 1917. More apparatus in Bureau of Health and rooms properly furnished for examination of children for employment certificates, as well as proper performance of vaccination, which, according to law, is done without charge. There were approximately 3224 vaccinations and dressings, an increase of 1404 over last year. One nurse cannot accomplish this, and her outside work, which is absolutely necessary for instruction of persons afflicted with Tb., as well as carrying out mandates of the Sanitary Code of New York, in communicable diseases. Recommend another nurse be appointed. The co-operation of the Commissioner of Charities, with the Bureau of Health, is very gratifying. The same method of examining children, after release from quarantine for scarlet fever and diphtheria, before re-entering school.

During the year the Bender Laboratory, under contract with the city, made 8435 examinations, an increase of 2304 over last year, thus increasing public health examinations very materially, and rendering very effective service. Again recommend milk stations be established in summer to decrease infant mortality. Chief milk inspector cannot accomplish work necessary to conform with rules and regulations established by Public Health Council for the State of New York. The work requires inspection of farms—about 500—that supply milk to Albany, and which takes several

months to carry out. During this time it is impossible for him to devote attention to work absolutely necessary in the city. The inspector is a veterinarian of high standing, competent to examine dogs for rabies, horses for glanders, cattle for foot and mouth disease, but this work cannot be done when he is out of the city. Again recommend that an assistant milk inspector be appointed, who should be a veterinarian, also recommend a sufficient number of sanitary inspectors to investigate existing conditions at regular intervals, irrespective of complaints. Also recommend the municipal collection of garbage, ashes and refuse. Privy vaults practically abated, except on streets where there are no water or sewer connections. The result is a much better sanitary condition in the city. Any circus entering Albany must present a certificate of health to the Health Officer, to prevent communicable disease entering the city. The contracts for Bureau of Health now expire the first of January, which is a great convenience to the Board.

1918. Mayor, James R. Watt. Commissioner of Safety, J. Sheldon Frost. Bureau of Health the same with the exception of the appointment of an assistant milk inspector, Leroy Blessing; Jay H. Teeter, Clerk; Annette Coplon, Confidential Clerk and Stenographer; G. Henry DeRouville and John R. Ray, Garbage Inspectors.

There were 11,238 communicable diseases reported, an increase of 8764 over last year. The Sanitary Code has added pneumonia and influenza to this list. During the fall and winter there was a noticeable increase in typhoid fever. Owing to severe weather, and waste of water, to prevent freezing of pipes, it became necessary to use Tivoli Lake for part of city water supply. The public generally notified to take proper precautions, such as boiling water for drinking and culinary purposes, as well as toilet. Recommended that typhoid vaccination be employed, and distributed by Bureau of Health free of charge. These precautions being taken epidemic typhoid abated. During the summer Albany placed a quarantine for rabies. This was done by the Department of Agriculture, at the request of the Bureau of Health. Tb. is still a great scourge. One nurse connected with the Bureau of Health devotes part time to Tb. work. There were 2429 vaccinations, dressings and examinations

of children, male and female, for employment certificates. One nurse cannot assist and accomplish results in her Tb. work. Hearty appreciation of the Commissioner of Public Safety for his co-operation with work of Bureau of Health. Infant mortality too high for the City of Albany. Would recommend that the efficiency of the Bureau of Health be increased, by the appointment of an assistant milk inspector. Contagious Disease Hospital, connected with the Albany Hospital, finished October, 1918. Taxed to its utmost capacity during influenza epidemic. October 5, physicians asked to report the number of cases of influenza under their care daily, and number reported thus greatly increased, in Bureau of Health. October 7, there were 7091 cases reported with 420 deaths. This is probably the worst calamity in Albany since cholera in 1832. The hospitals and physicians were taxed to the utmost.

The Health Officer acknowledged with earnest gratitude the splendid service rendered by men and women, in voluntarily assisting in the care of influenza cases. When the hospitals were nearly filled, the Bureau of Health had the smallpox hospital cleaned, disinfected, and a medical staff organized, but the disease abated and it was not necessary to employ this aid. The Health Director of Public Schools ill, and regretted he could not have rendered valuable service. The Superintendent of Schools assigned school nurses to the Bureau of Health, for work during the epidemic. All the charities did noble work: The Guild for Public Nursing, Catholic Women's Service League, Red Cross, etc. Medical students in the Albany Medical College arranged to care for the sick, and be on call day and night, under the Bureau of Health. The excellence of their work cannot be expressed, for the death rate would have been materially increased but for their services. Two of these men died from influenza. The students of the Albany Medical College were part of the United States Army, and no less honor than if they had died on the field of battle. The office of the Bureau of Health open to the public from 8 a.m. to 6 p.m., including Sunday. After 6 p.m. the Health Officer and part of his clerical force were at his private office until after midnight, often later. Many employees of the Bureau of Health were ill with influenza: also the chief inspector of

milk, the latter remaining on duty day and night until taken ill. Services rendered by the staff of the Bureau of Health were very much appreciated. Six members were ill, six in United States service, and there were temporary appointments to fill their places.

During the year all laboratory examinations were done through the Albany Hospital, at the laboratory in the Albany Medical College.

1919. Personnel same, with exception of William P. Larkin, Clerk, resigned, October 15, 1919. Health Physician, Dr. Bellin, resigned August 30, 1919. George N. Leonard appointed September 16, 1919; Harry H. Drake resigned March 15; Edmond J. O'Donnell appointed March 16.

Five thousand two hundred and eighty-four cases of communicable diseases, a decrease of 5954, due to epidemic of influenza subsiding. One hundred and twenty-one cases of scarlet fever, no deaths; ninety-eight cases of diphtheria, with six deaths; forty-seven cases of typhoid fever, with eight deaths. Many of the latter cases contracted outside of the City of Albany. There were two cases of smallpox in one family. The first patient contracted the disease in Whitehall, promptly removed to smallpox hospital, and all contacts vaccinated. In two weeks the second patient, a child, ill with disease and removed to hospital. No other cases developed. Tb. still commands attention. Government examinations of young men for military service demonstrates the too prevalent existence of this disease. Health officer advised greater activity in this field of work. State Law mandatory that special work be done in venereal disease, and added to service of nurse in Bureau of Health. Very much desire a nurse to be on duty at Bureau of Health at all times, and recommend another nurse be appointed to devote entire time to Tb. work. Again recommend the establishment of milk stations during summer months. A very high infant mortality. Recommend sufficient number of sanitary inspectors to examine barber shops, manicurists and chiropodists, kitchens of hotels and restaurants. These should be regularly inspected and municipal collection of garbage and ashes should receive better attention. The efficiency of the Bureau of Health increased by assignment of District Physician for special work at the office of Bureau.

October 16, 1919. Miss Dorothy E. Broeffle, nurse in the Bureau of Health, resigned, to take effect November 1. October 30 William Larkin, clerk, in the division of plumbing resigned, effective November 1. It was recommended to the Board of Estimate and Apportionment that this latter position be abolished and an additional nurse be appointed instead. Employees in the Bureau of Health who were in United States service during the World War have returned to duty. Appreciation is extended to the Mayor, Commissioner of Public Safety, Commissioner of Charities, Health Director of Public Schools and Registrar of Vital Statistics for their valuable co-operation, all of which is very manifest.

1920. Assistant milk inspector, LeRoy Blessing, resigned April 8, 1920, and Gordon W. Molyneaux appointed June 4, 1920.

Nurse Alta M. Bowen temporarily appointed November 1, 1919, was permanently employed January 1, 1920, and Mary E. Stellar appointed on latter date.

Death rate lowest on record in this Bureau, 15.89, less non-residents, 13.33.

Five thousand five hundred and forty-three cases of communicable diseases reported—practically no increase. Albany very free from communicable diseases, with the exception of influenza. There were 273 cases of scarlet fever, with one death; 171 cases of diphtheria, with eleven deaths. September 17, diphtheria was reported in the Brady Infants' Home, and again would we call attention to Dr. Sautter's thoroughness in getting control of the spread of this disease so promptly in this institution. These cases were at once removed to Pavilion G, and September 30 the outbreak ceased. This institution has a population of 165, and there were only twenty cases of diphtheria, thus demonstrating the value of the contagious disease pavilion. The co-operation of this institution and medical staff very pleasing. There were fifty-nine cases of typhoid—nine very doubtful, thirty-five having contracted the disease outside of the city, and eleven contact cases, with but four deaths. There were two cases of smallpox, first reported April 23. The patient contracted the disease in Wisconsin, was promptly removed to smallpox hospital, and necessary

precautions taken. Only one other case developed from this source, being the nurse in charge of this patient.

July 19 measles developed in St. Vincent's Orphan Asylum and cases promptly removed to Pavilion G. This asylum has a population of 167, and only twenty-two cases resulted, the last being reported August 16.

The Sanitary Code of the State of New York added encephalitis lethargica and botulism to the list of notifiable diseases. Infant mortality high and once more recommend sale of milk for infants in different sections of the city.

At the request of the State Department of Health, this Bureau is now supervising midwives' registration in Albany, and all their kits must be examined here. This supervision is educational in character and will result in the work being done in a more intelligent manner. Vaccinations and dressings, 1967, and 642 children examined for employment certificates. Two hundred and sixteen diphtheria cultures taken, and other miscellaneous work done by the nurse stationed on full time at the Bureau of Health, demonstrating the actual necessity of her services. This is now made possible by appointment of a second nurse, January 1, 1920, who does all outside work. The same recommendations and appreciation as for previous year.

1921. Death rate lowest in Bureau of Health, 14.06, less non-resident, 12.01. There were 3111 cases of communicable diseases reported a decided increase. One hundred and sixty-six scarlet fever cases, with three deaths. June 2 scarlet fever appeared in St. Vincent's Female Orphan Asylum, and cases promptly removed to Pavilion G. With a population of 167 at this institution, but twenty-three cases resulted, and epidemic ceased July 8, 1921. There was splendid co-operation between the authorities of the asylum and the medical staff. There were 254 cases of diphtheria, with seventeen deaths; thirty-one cases of typhoid fever, with six deaths, and nineteen of these cases were contracted outside of Albany. Three cases of smallpox reported, the first, November 2, and the second, November 21, 1920. The latter, sister of first patient, promptly removed to smallpox hospital, usual precautions taken and no more from this source of infection. The third case developed in a railway mail clerk, January 25, 1921. February 15,

measles reported in the Albany Orphan Asylum. There were thirty-two cases in a population of 135, and last reported April 26.

Again recommend the sale of milk to poor parents. There were 2544 vaccinations and dressings, and 293 children examined for employment certificates, with 135 cultures taken for diphtheria. Mr. John R. Ray, garbage collector, died December 20, 1920, and John Friendt appointed to fill the position. Number of garbage collectors decreased, and there were numerous complaints from Delaware Avenue section. An order was issued by the Bureau of Health, April 1, 1917, prohibiting the sale of dipped milk. This order contested in court and decision favorable to Bureau of Health. At this time our country entered into the World War, and, consequently, order not enforced, but would recommend its going into effect April 1, 1922. A very valuable communication from the Bureau of Health sent to Commissioner Frost April 9, 1920, regarding the intake of water, for Filtration Plant, a few miles above city. The water at this point is more dangerous than if Albany were situated thirty miles down the river.

The City of Albany has established a sewage disposal plant, and intercepting sewers, at a cost of \$1,200,000.

August 25, 1920, the Health Officer, in a letter to Commissioner of Public Safety, recommends that the office of coroner be abolished, with the appointment of a physician, qualified to act as a skilled pathologist and microscopist.

A summer survey made of that part of the city known as "Three Hill Farm," partly in the 13th Ward, regarding water supply and drainage. There are no sewers or water mains in this section, the inhabitants depending upon wells, of which there are 136, and examination shows 106 polluted. Would strongly recommend that steps be taken to extend water mains and sewers in this district, so that all wells and privy vaults can be abated.

Again is much appreciation extended to the Commissioner of Public Safety, the Health Director of Public Schools, and Registrar of Vital Statistics, they having proved more than co-operative in the work of the Bureau of Health.

It is to be noted that the work at the Bender Laboratory, which began in 1895, at a cost of \$750 annually for ex-

amination of sputum, diphtheria and Tb., is now \$7,500, and includes every test for water and milk, as well as all specimens bearing upon public health.

Heretofore little reference has been made in this report regarding the fly question, but the city newspapers, through suggestion of the Bureau of Health, have handled this carrier of disease so exceedingly well that the people of Albany have been thoroughly alert, and there was not much to be gained in emphasizing it further. However, the Board of Health made a careful investigation of stables, including those of the police and fire horses, instructing the owners how to treat manure, which is the chief source of the development of flies, by the borax and similar methods.

As a factor in improving the sanitary condition of Albany it seems proper to refer to the good work of the Board of Education, performed by Clinton P. McCord, M. D., Health Director of Public Schools, in regard to the fly question more particularly.

During 1918 and 1919 especially, the attention of all the schools was called to the suppression of this evil, and the following abstract, from the extra leaflets, number 7 and 9, "Swat the Fly," issued May, 1918, and May, 1919, seems very appropriate:

FLY FACTS

Flies breed filth, feed upon filth and carry disease. Flies may carry upon body and legs the germs of typhoid fever, tuberculosis, pneumonia and many other diseases.

Flies crawl over garbage, wade through sewage and filth and go swimming in the gutter. These same flies the next hour crawl over your cake, wade through your soup and take a bath in your milk; you eat and drink the dirt and germs that these impudent pests wash from their dirty feet.

A fly in the home is as much to be feared as a rattle-snake; the snake gives warning; the fly does his deadly work quietly.

All food should be carefully screened so that flies cannot crawl upon it.

Windows should be screened so that flies cannot enter the home and sow the seeds of disease and death.

Flies are enemies of babyhood, and we should kill flies in order to help conserve human lives.

Premises should be kept clean so that flies will not find breeding places. Garbage pails should be kept covered.

The Health and Recreation Clubs should be the first groups of boys and girls to fight flies as soon as these dangerous pests arrive in the spring.

The school nurses will talk to the pupils about the flies and how they spread disease; and the teachers will help to enroll a great army of boys and girls in the battle against the dirty, dangerous, disease-spreading fly.

One fly killed early in the spring will mean several millions less flies by summer time.

Every boy and girl should wage war against flies.

Enlist in the anti-fly army.

It will be noted that garbage disposal has not yet been settled by the city authorities. Much credit is to be given Dr. Sautter for succeeding in enforcing the separation of ashes and garbage, which has been of great service in making each more valuable commercially.

Dr. Sautter, with the entire force at his command, is worthy the commendation of the citizens of Albany, for the conscientious manner in which he has discharged the duties of his department. The Bureau of Health has received the endorsement, not only of the State Board of Health, but of many similar boards throughout the country.

It may be said today that Albany, so far as the service of the Bureau of Health is concerned, is cared for in a most practical, sanitary manner.

MEDICINE

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PSYCHIATRY

BOOK REVIEW

Psychoanalysis, Its Theories and Practical Applications. By DR. A. A. BRILL. *W. B. Saunders & Co., Publishers*

Brill's psychoanalysis is so familiar to psychiatrists that the detail description seems quite unnecessary. However, a brief abstract of certain chapters may be of more or less interest.

In Chapter I on psychoneurosis, he reviews Freud's Psychology and states that hysteria could be traced to actual psychic traumata. The hysterical manifestations were not accidental but had an actual cause. In some cases the connection between cause and effect is not simple, there is a symbolic relation. The psychic traumata or memory of them act like foreign bodies in consciousness and even long after their occurrence continue to influence the fixation of the psychic. The individual hysterical symptom disappears, if one succeeds in awakening the memory of the causal process with its affects and after the patient discusses the process giving free play to the affect. The pathogenic idea is of a painful nature, incompatible with the ego; the patient puts it out of his memory, but this forgetting or repression is not complete; the idea continues to strive, to come to the surface and constantly inhibited by the psychic censor, resulting in a compromise and this usually by process of conversation into a hysterical symptom. In the psychoneurosis there is a failure in the repressure of the idea concerning the unattainable wish; it was crowded out of consciousness but it remains in the unconsciousness, striving for an opportunity to become active. When it succeeds it brings to the surface a distorted substitution formation connected with the same pain the patient got rid of through the repression; this substitution formation is the symptom and in hysteria is brought about by conversion. In some there is no adaptation for conversion; the affect has become detached from the idea; it is not converted into the physical but remains in the psychic sphere and allies itself to another indifferent idea and becomes an obsession. In a clear and concise manner he discusses the subject of sexual experiences in relation to the psychoneurosis explaining Freud's conception of sex.

In discussing the psychopathology of every day life, he states that the unconscious includes those psychic manifestations of which the patient is unaware. It is made up of repressed material of those psychic processes which have been crowded out of consciousness from childhood. Later experiences are not subjected to the same account of repression as

the earlier and may remain in the foreconscious; the latter under certain conditions may reenter consciousness. The unconscious consists of wishes which are active and strive for expression. They determine our actions and our character is mostly based on memory traces of those repressed impressions which have influenced us most strongly and which have never become conscious.

DREAMS

Dreams always treat of the inmost thoughts and contain the fulfilment of a repressed wish. The latent content of the dream comprises the fundamental thoughts of the dream and is not known until the dream has been subjected to analysis; the manifest content comprises all the sensory impressions which are recalled by the dreamer on awakening; it seems absurd and incoherent, but by psychoanalysis it shows the fulfilment of a wish.

The purpose of the dream is to guard sleep.

By the process of condensation (a fusion of events, pictures) and displacements (the elements which seem most conspicuous in the content of the dream do not necessarily have corresponding importance in the thoughts of the dream) is brought about the transformation of the latent into the manifest thoughts.

The author cites several interesting dreams and his analyses of the same offers material assistance in understanding the psychology of dreams.

THE ACTUAL NEUROSIS

The neuroses are divided into the psychoneurosis and the actual neuroses. The psychoneurosis comprises hysteria and compulsion neuroses, while the actual neuroses include neurasthenia and anxiety neuroses.

The sexual life plays an important part in both. Hysteria and compulsion neurosis are of psychogenetic origin, neurasthenia and anxiety neurosis are due to somatic injuries. Among the symptoms of anxiety neurosis are general irritability, anxious expectation, nocturnal frights, vertigo, phobias, disturbances of the digestive functions and paresthesias. When the neurosis is acquired the etiological factors are based on influences from the sexual life. Brill enters into some detail in respect to these sexual injuries and influences. In the anxiety neurosis there is an accumulation of sexual excitement and this anxiety is of somatic origin and not psychic. Besides somatic sexual injuries the neurosis may have a psychic mechanism, similar to the mechanism in hysteria but instead of conversion into physical symptoms there is anxiety.

MASTURBATION

Masturbation has held the attention of physicians for centuries and has been misrepresented causing confusion not only to the laity but also to physicians. Brill considers it a manifestation of an impulse and believes if it is uncontrolled might have a deleterious influence on the emotional or psychic characteristics of the individual. He cautions about punishment in children, to overcome the habit, as it tends to deviate the impulse to some other abnormal path. In the child it is a manifestation of the budding sexuality.

According to Freud those cases which present obsessions, doubts and phobias are compulsion neurosis. Brill explains the course of a case of compulsion neurosis and illustrates by a concrete example.

His discussion of psychoanalysis is practically the same as in the previous editions and he illustrates by several interesting cases which he analyzed.

Under paraphrenia he discusses a group of individuals looked upon as "peculiar, crazy or eccentric" many of whom he classes under the head of paraphrenia. He urges careful study for diagnosis and specially recommends knowledge of the patient's complexes.

Paraphrenics either show no affect or it evinces itself in a morbid and inadequate way. He also advises to find their systems and states that his cases all passed through one emotional catastrophe followed by a partial adjustment with the gradual formation of a system. Some of the systems are simple, others complicated. As another diagnostic point, he calls attention to exhibition dreams.

Under paranoia he states that according to Freud paranoiac character lies in the fact that as a reaction to a defense against a homosexual wish fantasy there results a delusion of persecution. He calls attention to the mechanism of identification which enables the patient to represent in their symptoms the experiences of a great number of persons. They suffer of a whole mass of people and impersonate all the parts of the drama.

Chapters on masturbation and homosexuality have been added which contain considerable information regarding these two important subjects.

C. L. RUSSELL.

PEDIATRICS BOOK REVIEW

Infant Feeding. By CLIFFORD G. GRULEE, M.D., L.L.D., *Associate Professor and Acting Head, Department of Pediatrics at Rush Medical College. Fourth edition, thoroughly revised. Philadelphia and London, W. B. Saunders Company, 1922.*

Methods and styles of infant feeding change about as frequently as the length and shape of women's skirts. The fashion in the early 80's was to attribute all the bad effects resulting from feeding babies with cow's milk to casein. This might be termed the Proteid Age of infant feeding. A little later Rotch advocated not alone diluting the proteids but splitting them up and varying the other constituents of the milk to suit the needs of the individual baby. This was the Percentage Age. Then Escherich from his viewpoint of a bacteriologist as well as pediatrician felt that the effects of foreign bacteria produced nutritional disorders. He inaugurated the Bacterial Age. Czerny and his followers next advanced the theory that it was not proteids or bacteria that interfered with digestion and nutrition but the fat. He advocated fat free mixtures and recommended malt-soup. Then we entered upon the Fat Age. A few years later Finklestein vindicated the fair name of the fats and showed that the real culprit was the sugar. He devised a method of reducing the sugar and increasing the proteid which he called albumen milk. So came the Sugar Age.

There is evidence that we are on the verge of changing our theories and that the mineral elements of cow's milk will be blamed for the disorders of metabolism. Some methods of reducing and perhaps changing the salts of the milk will then become the style and we will find ourselves in the Salt Age.

If one could be permitted to look still further in the future would it be beyond the grasp of reason now that each of the constituents of cow's milk has had its day and has been supplanted, to imagine a Milkless Age in which a synthetic milk will be used and the cow discarded? Oleomargarine has largely replaced butter!

Grulee is a follower of Finklestein with some modifications. Nevertheless he places Czerny on a pedestal as being the first man to place infant feeding on a scientific basis. There are many, in this country at least, who believe the names of Meigs, Rotch, Laubi and Holt deserve a prominent place in the Hall of Fame of Infant Feeding.

Books on infant feeding seem to be among the best sellers of the medical publishers and, while many have appeared, few survive. The fact that this book has reached a fourth edition literally speaks volumes for its popularity.

The successful general practitioner of today must know the fundamental principles of infant feeding and nutrition. The average mother has attained considerable knowledge of this subject through popular booklets, articles and question boxes in the women's magazines, child welfare stations, lectures and the like. She is very apt to ask intelligent and often embarrassing questions and her physician must be prepared to cover his ignorance.

This is a book that will give him a complete and clearly expressed survey of the problems of nutrition in infants, and the author has avoided strictly technical and scientific discussions of various theories and methods. It is written to meet the needs of the general practitioner, not the specialist.

The first edition was reviewed in the *ANNALS* in 1912 and a few criticisms offered, but evidently they did not receive serious attention. For example, the statement was made in the first edition and repeated in this, that one fourth of all deaths occur in the first year of life. This has not been the case for many years and the census of 1919 showed that only fourteen per cent of all deaths in this country were under one year of age.

The illustrations are the same as appeared in the first edition and some of them could be omitted without detracting from the value of the book. The colored plates of alleged infants' stools are so unreal as to appear ludicrous. The present edition contains over one hundred additional pages and gives evidence that the German and English literature on this subject up to 1922 has been freely consulted.

It is very easy to find slight defects in any book, and to allow the mind to focus itself upon them and miss the good points and fail to obtain the broader vision.

This book should play an active part in the library of every general practitioner of medicine, as it is one of the most practical, reliable and sanest books yet published on the subject of Infant Feeding.

H. L. K. S.

CURRENT EVENTS

Edited by WILLIAM P. HOWARD, M. D.

THE ALBANY GUILD FOR PUBLIC HEALTH NURSING

REPORT FOR MAY, 1922

1. *Patients:* Old carried from April, 468; new, 246; total 714. Dismissed, 192. Carried into June, 522.
2. *Source of Cases:* Metropolitan Life Insurance, 76; doctors, 31; nurses, 13; dispensary, 17; family or friends, 28; other sources, 81. Classification of new cases. Medical, 102; surgical, 12; obstetrical, 48; prenatal, 43; tuberculosis, 20; venereal, 21.
3. *Visits:* Total, 2502, classified as follows: Nursing—General nursing, 718; confinements attended, 20; post partum nursing, 359; post natal nursing, 374. Preventive—prenatal, 125; post natal welfare, 32; post partum welfare, 41; pre-school welfare, 87; T. B. inst. and super., 115; V. D. inst. and super., 10; cardiac, 11; observation and supervision, 60; other purposes, 550.
4. *Disposition of Cases:* Recovered, 82; improved, 83; unimproved, 5; to hospital, 4; dead, 8; to other care, 10; T. B., 0; venereal, 0.

REPORT FOR JUNE, 1922

1. *Patients:* Old carried from May, 522; new, 238; total, 760. Dismissed, 213; carried into July, 547.
2. *Source of Cases:* Metropolitan Life Insurance, 56; doctors, 11; Nurses, 12; dispensary, 14; family or friends, 27; other sources, 73, including V. D. and T. B. 17 and 28 = 118. Classification of new cases: Medical, 89; surgical, 2; obstetrical, 68; prenatal, 34; tuberculosis, 28; venereal, 17.
3. *Visits:* Total, 2148, classified as follows: Nursing—general nursing, 501; confinements attended, 26; post partum nursing, 305; post natal nursing, 334. Preventive—prenatal, 134; post natal welfare, 34; post partum welfare, 44; pre-school welfare, 0; T. B. inst. and super., 111; V. D. inst. and super., 13; cardiac, 1; observation and supervision, 109; other purposes, 536.
4. *Disposition of Cases:* Recovered, 88; improved, 78; unimproved, 2; to hospital, 2; dead, 8; to other care, 23; T. B., 6; venereal, 7.

ACTIVITIES OF SOCIETIES

SARATOGA SPRINGS MEDICAL SOCIETY.—The annual meeting of the Saratoga Springs Medical Society was held at Newman's, Saratoga Lake, May 18, 1922. Dr. G. Scott Towne was reelected president and Dr. Harry L. Loop, vice-president. Dr. Webster M. Moriarta was elected secretary-treasurer.

Dr. Arthur H. Stein of Albany read a paper to the Society on "Head Surgery."

THE EASTERN NEW YORK PUBLIC HEALTH ASSOCIATION.—The annual dinner of this association which consists of health officers and physicians who hold certificates for completing the post-graduate course in infectious diseases and public health, was held at the Ten Eyck hotel on June 22, 1922. Many members of the three previous classes attended. The twenty-three members of the fourth annual class were presented with certificates by Dr. Nicoll, Deputy Commissioner of the State Department of Health.

Addresses were also made by Dr. Charles C. Duryee of Schenectady, director of the course; Dr. Thomas Ordway, dean of the Albany Medical College; Dr. Stanton P. Hull, member of the public health council, and Dr. William C. Treder, health officer of Scotia, president-elect.

At a meeting held prior to the dinner, Dr. M. D. Dickinson of Troy, retiring president, addressed the class. The following officers were elected for the ensuing year: President, William C. Treder, M. D., Scotia; vice-president, J. W. Wiltsie, M. D., Albany; secretary-treasurer, W. G. Keens, M. D., Albany; executive committee, H. E. DeFreest, M. D., Troy; J. B. Washburn, M. D., Delmar; J. R. McElroy, M. D., Jonesville.

Certificates were awarded as follows: Dr. J. E. Armstrong, Greenwich; Dr. F. E. Bolt, Worcester; Dr. Charles K. Burt, Lake George; Dr. W. H. Conger, 24 Washington Street, Poughkeepsie; Dr. W. S. Dart, 7 Grand Street, Oneonta; Dr. R. C. Davies, Granville; Dr. Herbert E. DeFreest, McKinley Square, Troy; Dr. George W. Dufty, Nassau; Dr. Lawrence D. Greene, Garfield; Dr. L. B. Honeyford, Catskill; Dr. John L. Loutfian, Coxsackie; Dr. Daniel R. Robert, Lebanon Springs; Dr. D. L. Rogers, Bolton Landing; Dr. Millard F. Shafer, Cobleskill; Dr. Charles A. Shultes, Preston Hollow; Dr. Franklin A. Stiles, Portlandville; Dr. W. J. Wansboro, 226 Lark Street, Albany; Dr. Fred B. Weaver, Hyde Park; Dr. Huntington Williams, State Department of Health, Albany; Dr. James W. Wiltse, Bureau of Health, Albany; Dr. C. W. Hamm, 607 Pawling Avenue, Troy; Dr. James R. Touhey, Geneva, and Dr. Edward J. Bedell, Delmar.

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.—The regular monthly meeting of the Medical Society of the County of Albany was held in the auditorium of the Albany Institute Historical and Art Society, 125 Washington Avenue, Albany, Friday, June 30, 1922. The meeting was called to order at 8:30 p.m. by Thomas W. Jenkins, M. D., president.

SCIENTIFIC PROGRAM.—“The Medical Aspects of the Framingham Tuberculosis Demonstration,” with particular reference to “The Applicability of Such a Demonstration to a Second Class City,” by Donald B. Armstrong, M. D., executive officer, Framingham Demonstration. (By invitation.) “The Presentation of the Milbank Foundation Announcement,” by Dr. W. E. Lawson, Medical Director, Albany County Tuberculosis Association. A resolution requesting the Milbank Foundation to arrange a demonstration in Albany, was unanimously adopted by the society.

LABORATORY WORKERS CONTRACT TULARAEMIA

All six of the laboratory workers of the U. S. Public Health Service who have been studying tularaemia, a disabling sickness of man which has been known, particularly in Utah, for the last five years, have contracted the disease, two of them being infected in the laboratory in Utah and the other four in the Hygienic Laboratory in Washington. Such a record of morbidity among investigators of a disease is probably unique in the history of experimental medicine.

Two of these workers are physicians; one is a highly trained scientist, and the others are experienced laboratory assistants. One of them contracted the disease twice, once in the laboratory in Utah and again, two years and five months later, in the laboratory in Washington.

In these workers the disease began with a high fever, lasting about three weeks, and was followed by two months of convalescence. The disease has few fatalities, its chief interest arising from the long period of illness which it causes in mid-summer, when the farmers of Utah are busily engaged in cutting alfalfa and plowing sugar beets.

The studies into the cause and transmission of the disease show it to be due to a germ, *Bacterium tularense*, which is conveyed by six different insects: the blood-sucking fly, *Chrysops distalis*; the stable fly, *Stomoxys calcitrans*; the bedbug, *Cimex lectularius*; the squirrel flea, *Ceratophyllus acutus*; the rabbit louse, *Haemodipsus ventricosus*, and the mouse louse, *Polyplax serratus*. Only the first four of these are known to bite man. It appears possible that the germ may also enter through unbroken skin; for instance, that of the hands.

NEW ORGANISM AKIN TO BOTULINUS

The existence, says the Public Health Service, in a recent report by Ida A. Bengtson, has been demonstrated of an anaerobic organism producing a soluble toxin which affects animals in a manner similar to that of the botulism organism but which fails to be neutralized by polyvalent botulinus antitoxin. Study of the organism, as found in the larvae of the green fly *Lucilia caesar* sent to the Service, indicate that it differs markedly from the botulinus isolated in the United States, and possibly is more nearly related to the European type described by von Ermengem in 1912, though it differs from this in important respects. Tests on laboratory animals by inoculation and by feeding caused death in from five to seventy-one hours. The most striking pathological result was, as in botulism, the congestion of the blood vessels of the brain and meninges. Efforts are being made to produce an antitoxin. That the organism of the disease causes limberneck in chickens has not yet been demonstrated.

ALUMNI NOTES

Edited by CHARLES C. DURYEE, M. D.

1863

DR. HENRY T. DANA is in practice at Cortland, N. Y. Dr. Dana's address is 28 North Main Street.

1864

DR. HENRY P. VONBURG is in practice at Halsey Village, Tioga County, N. Y.

1865

★DR. EMMETT FLAGLER, one of the best known residents of Lansingburg, died May 31, 1922, after having been ill several years. He was the son of Thomas and Eliza Jane Flagler, born in the town of Halfmoon, Saratoga County, May 23, 1840.

Dr. Flagler studied in the Middletown Academy and was graduated from the Albany Medical College in the class of 1865. He served in the Civil War with the 192nd Regiment, New York Infantry. At the close of the war he became a practicing physician and settled in Watervliet. He married Sarah C. Wilson of Watervliet. After practicing ten years in Watervliet he took up construction work and became a partner of the R. W. Sherman Construction Company of Utica. Later the firm was renamed and was known as the Sherman, Flagler & McDonough Construction Company.

For a number of years before retiring he was a state inspector of public works. He is survived by two daughters, Martha and Louise Flagler, of Troy; two sons, Thomas Flagler, of Poughkeepsie, and Jeff C. Flagler, of Troy.

1869

DR. GEORGE EASTMAN PAUL is practicing at Granville, Washington County, N. Y.

1871

DR. GEORGE CONKLING is practicing his profession at Durham, Green County, N. Y.

1873

DR. HENRY B. WHITEHORNE is in practice at Verona, N. J. Dr. Whitehorne was one of the organizers of the A. M. C. Alumni Association in 1874.

DR. JOHN H. CARMICHAEL is in practice at 41 Maple Street, Springfield, Mass.

1874

DR. GEORGE L. MERRITT is in practice at Cherry Valley, Otsego County, N. Y.

DR. DANIEL W. COLCORD is practicing at 25 Charter Street, Newburyport, Mass.

1875

DR. NATHANIEL E. PAINE is in practice at 1640 Washington Street, West Newton, Mass. Dr. Paine is Professor of Mental Diseases in the Boston University Medical School.

1877

DR. JESSE CROUNSE has been in practice for many years at Altamont, Albany County, N. Y. Dr. Crouse is health officer of the town of Guilderland.

DR. GILBERT S. OLIN is in practice at Fairport, Monroe County, N. Y.

1878

DR. AUSTIN D. JOHNSTON is practicing at East Branch, Delaware County, N. Y.

DR. GEORGE F. GARDNER is in practice at Ellisburg, Jefferson County, N. Y. Dr. Gardner is health officer of the consolidated health district of the village and town of Ellisburg.

1880

DR. SABBATH E. ULLMAN is located at 98 Broadway, Jersey City, N. J.

1881

The following interesting communication has been received from Dr. WILLIAM B. WEBSTER of Schuylerville:

As we listened to Dr. Ordway's able paper at the meeting of the Alumni Association, our minds were filled with varying emotions. While we sympathized with the raising of the standard of medical education, and appreciated the fact of its necessity, due to the rapidly broadening field which members of the profession are to fill, yet we could not but feel a degree of sympathy for the young fellows when we considered the situation which, to use a term of the street, they are immediately "up against."

After taking a preparatory course, including the High School, at least two or three years of college course, four years of medical training, one year or more of hospital internship, passing the State Board, etc., they are allowed, under our elastic laws, to meet on a commercial basis members of pseudo-medical cults, representing about forty select brands of quackery; the more preposterously absurd and blatant, the more readily swallowed by a credulous and not always uneducated public.

The medical student, while pursuing his protracted, expensive and tiresome journey to his degree does so at his own expense with no opportunity, except possibly intermittently and on the side, to add to his financial resources; while his to be flourishing competitor of the large pretension and larger ignorance may pursue his regular remunerative occupation, while "taking up" his six weeks or six months correspondence course of "professional studies."

In the case of Osteopathy, we admit this situation has been changed; but it is only necessary to change one's professional name to "Chiropractor" or originate some other verbal invention to "get by" our technically elastic state law, while the regular graduate of our medical college, if he, after graduation fails to pass the State Board, and yet dares to attempt to practice legitimate medicine, is promptly squelched by the mighty arm of an outraged and highly incensed state law. It does not relieve the situation to say that only the poor and the ignorant are susceptible to the wiles of the quack; because that is not true. Our best educated and cultured people are among those most credulous regarding their life and health; and are

prone to side-track absolutely their cultivated reasoning powers, when accosted by blatant and conscienceless quackery. Now who and what is to blame for this situation? Well, in no small measure the medical profession itself.

It is a well known fact that the average politician, while he may love God and respect, at least, the influence if not the personality of the devil, fears and respects neither to the extent that he does an aggregation of votes, no matter as to their source or what they represent, provided they have the power. Therefore when legislation is put forward tending to improve public health, medical education and the standards for the practice of medicine, or anything else that offers hope for the cure or prevention of disease, or for supporting and protecting those who have fulfilled the law's requirements, all of the forty odd pseudo-medicine quack cults put up a united front in opposition. They enlist their friends to the end that they convey to the legislative mind that sentiment favorable to the cults is the prevailing sentiment among the constituents. On the other hand, the medical profession, wrapped in its cloak of professional dignity, pays no attention to the situation; and the politician, who is nothing if not a successful "vote-getter," complacently takes care of his own. There are no quack lawyers, railroad engineers, papermakers, etc., and there cannot be and will not be. It is disappointing and discouraging that it is so in the medical profession. Its effects are shown in the fact that attractive sections are without needful medical service, monetary inducements of a substantial sort being offered without avail. The fact that the A. M. C. class of 1882 was 60 strong, of 1922 was 12 strong, may have a slight significance.

Loud howling from the medical profession without united effort will avail nothing. Let the profession get busy and make their influence felt in the interest of righteous legislation, their own personal interest, the protection of the young graduate and incidentally that of the over-credulous public generally.

1882

DR. JOHN B. WASHBURN is in practice at Delmar, N. Y. Dr. Washburn is health officer of the town of Bethlehem, Albany County, N. Y.

DR. WILLIAM B. PLATNER is practicing at Germantown, Columbia County, N. Y.

DR. ISAAC C. WASHBURN is practicing at Chatham, N. Y. Dr. Washburn is health officer of the village of Chatham.

DR. WALLACE E. DEITZ, of Berne, Albany County, N. Y., who has been ill for some months, is slowly convalescing with the aid of a much needed rest.

DR. FRANK V. BROWNELL is in active practice at Canajoharie, N. Y.

1883

DR. ISRAEL M. SLINGERLAND is practicing at Fayetteville, Onondaga County, N. Y.

1884

DR. CHARLES F. TIMMERMAN is located at 23 Division Street, Amsterdam, N. Y., where he has been for many years. Dr. Timmerman is visiting physician and surgeon to the City Hospital.

1885

DR. ALEXANDER L. JOHNSON is practicing at 48 Fremont Street, Gloversville, N. Y. Dr. Johnson has been for some years an efficient and successful health officer of that city. At the recent meeting of the Sanitary Officers Association, held at Saratoga, Dr. Johnson was elected a vice-president.

DR. ANDREW C. CROUNSE is in practice at Melrose, Rensselaer County, N. Y.

DR. IRVING S. EDSALL is in practice at Middleville, Herkimer County, N. Y. Dr. Edsall is the health officer of the town of Norway.

1886

DR. HARRY S. BLACKFAN is in practice at Cambridge, Washington County, N. Y., and is health officer of the town of Cambridge.

1887

DR. HENRY C. YOUNG is in practice at Hagamans, Montgomery County, N. Y., where he has been for many years. Dr. Young is the health officer of the village of Hagamans.

DR. WILLIAM W. BROGA is in active practice at 663 State Street, Springfield, Mass.

1888

DR. FREDERICK M. BARNEY is practicing at Dolgerville, Herkimer County, N. Y.

DR. EDWIN B. WELLS is in practice at Nicholville, St. Lawrence County, N. Y. Dr. Wells is health officer of the town of Lawrence.

DR. EMERSON A. LUDDEN is in practice in North Brookfield, Mass.

1892

The Thirtieth Annual Reunion of the Class of 1892 of the Albany Medical College was held at the Fort Orange Club on Alumni Day, Monday, June 12th, 1922, at 1:30 p.m.

There were present fifteen members of the Class. After the luncheon an important business meeting was held, at which President Sweet of the Class presided. Temporary secretary, Fred J. Cox, was unanimously elected permanent secretary and treasurer. It was voted that the Class have an Annual Reunion on Alumni Day in the future at the Fort Orange Club.

The reunion was enthusiastic and one long to be remembered by the Class of '92.—R. A. HEENAN.

DR. R. A. HEENAN has removed his office from 235 Main Street to 9 Elm Street, Hudson Falls, N. Y.

DR. CHARLES R. SEYMOUR, 197 Main St., Binghamton, N. Y. is physician to the city hospital.

DR. CLARENCE D. VROOMAN is in practice at Ellenville, Ulster County, N. Y.

1893

DR. EDWARD J. BEDELL is practicing at Delmar, Albany County, N. Y.

DR. FRANK B. SANFORD is in practice at Morley, St. Lawrence County, N. Y. Dr. Sanford is county physician.

1895

DR. FRANK H. HURST is in practice at Guilderland Center, Albany County, N. Y.

1896

DR. ROSCOE J. TAYLOR is in practice at East Nassau, N. Y. Dr. Taylor is health officer of the town of Stephentown, Rensselaer County, N. Y.

DR. FRANK McLEAN of Chenango Forks, N. Y., is health officer of the town of Chenango, Broome County, N. Y.

DR. JOHN P. CARVER is in practice at Simsbury, Hartford County, Conn.

DR. GARPETT V. JOHNSON has been transferred from the U. S. Marine Hospital in Savannah to the U. S. Veterans' Hospital in Lake City, Florida, as medical officer in charge. This is a 250-bed hospital with two buildings of 100-bed capacity for tubercular patients.

1897

DR. ROBERT C. DAVIES is in practice at Granville, Washington County, N. Y. Dr. Davies is health officer of the town of Granville.

DR. J. A. STEVENSON is in practice at Chester, Vt.

1898

DR. OTIS Z. BOUTON is practicing at Fultonville, Montgomery County, N. Y. Dr. Bouton is health officer of the consolidated health district of the village of Fultonville and the town of Glen.

DR. GEORGE M. GILCHRIST is practicing at Groton, Tompkins County, N. Y.

1899

DR. FREDERICK D. BRANCH is in practice at Binghamton, N. Y. Dr. Branch's office address is 74 Front Street.

1900

DR. WILLIAM H. PETRIE is in practice at Dolgeville, Herkimer County, N. Y.

DR. ALEXANDER KLEIBE is practicing at Hopedale, Mass.

1903

*DR. WILLIAM L. MULCAHY, of Far Rockaway, who died in San Francisco upon his return from Honolulu, June 16, 1922, was born in Albany and was graduated from the Albany Medical College, class of 1903. For the last sixteen years he practiced at Far Rockaway and was on the staff of St. Joseph's Hospital.

DR. PHILIP WOLFMAN is in practice at New Brunswick, N. J.

1904

DR. JOHN R. MAHAM is practicing his profession at 47 Orange Street, New Haven, Conn.

*DR. DENNIS A. MURPHY of Gloversville, N. Y., died June 14, 1922, aged 41, from pleuropneumonia.

1905

DR. JAMES H. VAN BUREN is located at Deansboro, Oneida County, N. Y.

DR. CHARLES CLARK SWEET, 13 Maple Place, Ossining, N. Y., is chief surgeon of the hospital at Ossining, N. Y. He is a Fellow of the American College of Surgeons.

1906

DR. HENRY F. ALBRECHT is in active practice at Green Island, N. Y. Dr. Albrecht is an attending physician to the Troy City Hospital, as well as health officer of the village of Green Island.

DR. WINFIELD S. KILTS is in practice at Canajoharie, N. Y. Dr. Kilts is health officer of the villages of Canajoharie and Palatine Bridge, and also of the town of Root, Montgomery County, N. Y.

1907

DR. HENRY J. LINDEN is in practice at Cherry Valley, Otsego County, N. Y.

1908

DR. EARL F. BABCOCK is in practice at Adams Center, Jefferson County, N. Y. Dr. Babcock is the health officer of the town of Adams.

1909

DR. CHARLES J. KELLEY, of Cortland, N. Y., is attending surgeon to the Cortland Hospital.

DR. CHARLES E. SLATER is in active practice at Fort Plain, N. Y. Dr. Slater is health officer of the consolidated health district of the village of Fort Plain and town of Minden, Montgomery County; he is also the health officer of the village of Nelliston.

1910

DR. FRANK G. CALDER is practicing at 28 East Main Street, Johnstown, N. Y. Dr. Calder is physician to the Tuberculosis Dispensary.

1911

DR. FRANK M. NEUENDORF is in practice at 28 North Market Street, Johnstown, N. Y. Dr. Neuendorf is the efficient health officer of that city.

DR. ARTHUR KRIDA is practicing in New York City.

1912

DR. WILLIAM E. LOW, JR., formerly of Richmondville, N. Y., is now located at 12 Grand Avenue, Binghamton, N. Y.

DR. ALBERT LENZ of Schenectady, N. Y., is devoting his time to the practice of roentgenology.

1913

DR. HENRY S. HOWARD is practicing at Minaville, N. Y. Dr. Howard is health officer of the town of Florida, Montgomery County, N. Y.

DR. ELMER H. ORMSBY, of 33 Church Street, Amsterdam, N. Y., is visiting physician and surgeon to St. Mary's Hospital, Amsterdam, N. Y. Dr. Ormsby is also chief medical inspector of schools in that city.

DR. WILLIAM H. ACKROYD is practicing in Johnson City, Broome County, N. Y.

1914

DR. FRED D. WILSON is practicing at Fleischmanns, Delaware County, N. Y.

DR. EDWIN H. HUNTINGTON has changed his address from Cairo, N. Y., to 64 South Highland Avenue, Ossining, N. Y.

DR. ROBERT W. HELM, of Ossining, N. Y., is health officer of the town of Ossining.

DR. HARRY D. PARKHURST is in practice at 264 Genessee St., Utica, N. Y. Dr. Parkhurst is on the staff of the St. Elizabeth Hospital.

1915

DR. JONATHAN PEARSON, 713 Union Street, Schenectady, N. Y., is at Saranac Lake where he is taking a six weeks' course in diseases of the chest at the Trudeau School of Tuberculosis.

DR. JOHN E. BURKE is practicing neurology in Schenectady. In addition, he is director of health in the public schools.

DR. ALBERT N. CROUCH is industrial physician at the American Locomotive Works, Schenectady.

DR. JAMES M. DUNN is doing general practice in Schenectady. He was recently made one of the managers of Glenridge Sanatorium.

1916

DR. R. J. WHARTON has removed from Richmondville to 21 West Street, Johnson City, Broome County, N. Y.

1917

DR. BYRON CHAPMAN is practicing in Broadalbin, N. Y.

DR. JOHN F. MCGOVERN is practicing in New Brunswick, N. J.

DR. SAMUEL W. GREEN has limited his practice at 161 Clinton Street, Brooklyn, N. Y., to ophthalmology.

DR. JOHN H. ROBERTSON is in practice at Johnson City, Broome County, N. Y.

1920

★DR. P. LAWRENCE DENOYELLES, assistant in pathology in Albany Medical College, died May 23d from an acute exacerbation of a chronic nephritis. He was the only son of Mr. and Mrs. Samuel DeNoyelles of Jersey City, N. J. He is survived by his wife, formerly Miss May Heath, a graduate of the Peter Bent Brigham Hospital, Boston, and by his parents and a sister. Services were held in the chapel of Marshall W. Tebbutt's Sons, 176 State Street, Albany, at 8 o'clock on the evening of May 24th. A large number of friends of Dr. DeNoyelles were present at the service which was conducted by Dr. R. H. Brooks of the Episcopal Church. The body accompanied by Dr. Edward S. McDowell of the Albany Hospital was taken to Jersey City for burial.

Dr. DeNoyelles was born in New York City, May 28, 1893. He graduated from the Dickinson High School of Jersey City. He attended Columbia University Summer School in 1911 and New York University, 1912-1913. He entered Albany Medical College in 1916 and graduated

with the class of 1920. During the influenza epidemic of 1918-1919 he, like many other students, gave his best in the care of the large number of patients in the Albany district, part of the time working as externe in the Homeopathic Hospital. Shortly before he graduated he developed mastoiditis which required operation. At that time there was definite evidence of renal disease. He completed his course and from 1920 to 1921 served as interne in the Albany Hospital where his work was of a very high order. In October, 1921, he became assistant in pathology in the Albany Medical College, specializing in surgical pathology in order to better prepare himself for his future work as a surgeon. He was particularly interested in gynaecology. In the laboratory he displayed great ability not alone in technical procedures in which he became highly proficient, but he also had original ideas. He was enthusiastic and keen, attitudes which were emphasized in any work he undertook. Shortly before his final illness he completed a very creditable study of lymphosarcoma of the intestine and a paper by him on this subject will appear in the *Annals of Surgery*. His final illness lasted about seven weeks, his smiling and hopeful disposition being with him to the last. "Larry" accomplished much in the twenty-nine years vouchsafed him but his going cut short what gave every evidence of being a highly successful professional and scientific career.—V. C. JACOBSON.

1921

DR. WILLIAM JAMESON, for two years and a half with the Ellis Hospital, has completed his internship with the hospital. Dr. Jameson is now in Boston completing arrangements with a foreign missionary board for taking up work as a medical missionary. It has not as yet been decided whether Dr. Jameson will go to China or India. He will not sail to begin his new work until late in the fall, around November. Dr. Jameson will spend the summer at Lake Champlain and prior to going to the foreign fields will study tropical medicine for several months in England.

ALBANY MEDICAL ANNALS

THE FUNCTIONS OF A CHILDREN'S HOSPITAL

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To be recognized at all as one who has tried to do anything toward the betterment of the health of the children of the country is certainly worth striving for. I consequently appreciate very much the honor which you have done me in asking me to address you this evening on the occasion of the opening of your new Children's Department. It is with regret, however, that I feel I cannot bring to your attention anything new—anything which has not already been said or written by others.

The occasion naturally directs our attention to the subject of the existence and origin of children's hospitals, and it has seemed fitting to discuss with you briefly the topic of "The Functions of a Children's Hospital," and this, of course, applies equally to the functions of a children's department in any hospital. I have thought it might be of interest first of all to review briefly something of the early development of children's hospitals.

It is hard to realize that hospitals of any sort are not of older origin. The ancients had nothing at all which corresponded, as far as we can learn. The earliest certain reference to hospitals as we know them appears toward the end of the 4th century, and these institutions were probably largely almshouses. Later, hospitals were established in connection with monasteries, and in the 11th century there were two

founded in England. As concerns hospitals for children, these lagged far behind the others. I do not know whether special children's wards in general hospitals were the first to arise, although from what I can learn separate hospitals for children seem to have been the first to appear. However this may be, the first of any sort intended especially for children to which I can find a reference, exclusive of asylums for children, was the Dispensary for Sick Children, founded by G. Armstrong in London in 1769 — only about 150 years ago — and this was only for patients well enough to attend a dispensary service. By the way, this Dr. Armstrong was, curiously enough, apparently the first to describe the lesions of stenosis of the pylorus in infants. His account antedated by eleven years that by Hezekiah Beardsley, to whom is generally attributed the first description of the disease. But to return to our hospitals. Another for out-patients alone was started by Mastalier in Vienna in 1787. Next in order comes the celebrated Hôpital des Enfants Malades of Paris, which was primarily established under another name in 1802. It was the first hospital for the treatment of sick children *within* its wards. How slowly things were moving in pediatrics compared with nowadays! It took, as you see, forty-three years from the time of the starting of the first children's dispensary until a place for the in-treatment of sick children was established; and now it required thirty-two years more before the appearance of the second children's hospital for in-patients, the St. Nicolas Hospital in St. Petersburg, dating from 1834. Eighteen more years were passed before the first hospital for in-patients was founded in English-speaking countries, viz.: the Great Ormond Street Hospital in London, started by Sir Charles West. I am proud to say that the next hospital in England or America, intended for the treatment of children alone, was the Children's Hospital of Philadelphia, established in 1855.

Since this time children's hospitals and children's wards have grown in number, by leaps and bounds. I have no idea how many there are in this country. Had I had time, I would like to have looked into this subject for my personal information. But *you* know that there is scarcely a small

city which does not have a provision of this sort for its sick children, either as an independent hospital or as a children's ward.

I hope I have not wearied you with statistics. Let us come now to some of the proper functions of a children's hospital. First of all, of course, is the treatment of the patients. This goes without saying; but there are a good many things besides mere treatment which are to be done, and which formerly were not done, which aid in the attempt to restore a sick child to health. It used to be that a patient was sent in by a physician who perhaps felt that he had reached the limit of his ability, or who had concluded, often very wisely, that the home conditions were such that treatment there could not be successful. The same was true of cases sent in from the out-patient department. In either event the children entered the ward unaccompanied by any description of the case as seen by the dispensary or the private physician, and to this extent the physicians of the house were largely handicapped. They had also no means for discovering by later inquiry what the home conditions might be which perhaps were responsible for the state of the child. Matters are now changing to a very great extent; and this has been accomplished partly by a closer co-operation between the out-patient department and the wards, and largely, too, by the aid of the Social Service Department. A child now entering the wards is, or should be, accompanied by a description of the case, if it has visited the dispensary; and an account also of the home conditions as given by the social service worker in all instances where this seems desirable. When it is sent in by an outside physician, the Social Service Department can find out later about affairs at home when this seems needed, and the bearing of these on the disorder of the child can then be helpfully taken into account. In this way the dispensary, the social service, and the ward are working conjointly, and, it needs no argument, with increased chance of doing the patient good.

Again, formerly after a hospital ward had finished with a child, it was sent home "cured" or "improved," as the case

might be. That was all. Nowadays a children's hospital has left its work far from complete if only this is done. Every physician to a children's ward knows how common it is for a patient with heart disease to go out in good condition and to return once and again with lost compensation. We have not treated the child properly unless we try to discover *why* renewed failure in health is likely to occur when the child goes home. Here comes in the province of the *follow-up nurse*, who by visiting the child at its home can see that the directions regarding medication, exercise, etc., are being observed. Let me give you another instance of the value of hospital work *outside of the hospital*. An infant comes into the ward — a bad feeding case. After a time it recovers; or very often it does this to a limited extent only, and then reaches a standstill. We know that a hospital ward is not at all an ideal place for a feeding case. Shall we send the infant home? The Social Service Department can now discover for us the details of the home conditions and whether the mother has sufficient means or is intelligent enough to undertake, under guidance, the feeding of the infant. Then if the infant is sent home, the follow-up nurse can visit the house at regular intervals and see that the instructions for feeding are properly carried out, and, if not, can herself demonstrate how the food is to be prepared. In these, and indeed in many other conditions, the question often arises concerning the advisability of sending a patient to a convalescent home or some similar institution in the country or at the seashore; and now the hospital physician, the Social Service Department and the Convalescent Home are all working in unison. So the functions of a children's hospital have extended themselves far, as you see. Instead of the hospital remaining independent and indifferent to work not within its wards, it now does, or should, broaden its influence to treat disease outside.

This brings us to a topic which, as you know, is receiving great attention at the present time. I refer to preventive pediatrics; i.e., the effort not only to restore a child to health, but to prevent it from becoming ill. In this line of work comes the establishing of health centers, infant

welfare stations, and analagous institutions under different names, where, for instance, ignorant mothers can be taught how so to care for their infants and children that they shall not become ill, or where, if minor defects are discovered, efforts may be made to cure these in their incipience and thus prevent the development of any more serious disorders. This is especially valuable in the attempts to improve the feeding conditions of infants not yet ill; but there are many other ways in which preventive pediatrics exerts its efforts, as, for instance, in the prevention of rachitis in early infancy and in the careful study of children of the pre-school age and school age, in order to discover and remedy the various minor ailments which may later give rise to conditions of distinct ill-health. All these measures have been carefully studied now for a good many years, and the results have been surprisingly good in the diminution of mortality and morbidity. In all these efforts the children's hospital of any city should be actively interested. In fact it should be the center around which the other institutions group themselves in a co-operative manner. Our trouble in the past has often been that charitable work of these different sorts was too inco-ordinated, with the result that the expense has been vastly increased and the benefits diminished.

It ought to be expected of the oldest children's hospital in the country, which, as I have said to you, is the Children's Hospital of Philadelphia, that it should take an advanced position in all these newer methods for the prevention of disease or of its recurrence; and consequently I may be permitted to illustrate what I wish to say of the functions of a children's hospital in this direction by a very brief outline sketch of the plans of work now being carried out at that institution. Not that we consider these perfect by any means, but that they represent a conscientious and fairly satisfactory effort toward the betterment of the health of the children of the poor.

Our Hospital established its Social Service Department now about eleven years ago, and eight years ago started a special department for the prevention of disease. I am told by

Dr. Howard Carpenter, who is the able head of this department in the Children's Hospital, that this was the first distinct department of this nature to be established in any hospital in this country. The latter department took over the social service work and follow-up nursing, and also set going a number of additional activities. First I may mention the *Health Clinic*. To this are referred all the children who are discharged either from the wards or the dispensaries as cured, in the effort to keep them under continued observation. An effort is also made to bring under the influence of the Health Clinic children from any source, and especially those residing in the neighborhood of the Hospital. The Health Clinic supervises the health of the well children, has them return at regular intervals for thorough physical examination, keeps a continuous health record of every child, conducts talks to and demonstrations to groups of parents and also to groups of children upon health topics, and makes every effort to arouse the interest of the mother and of the child in good personal hygiene, correct diet, proper and sufficient exercise, and the like. In the meantime the health records show the worker and the child what progress has been made, and this stimulates to renewed efforts. The attempt is also made to have all infants brought weekly to be weighed, in order that steps may be taken to change the diet if this seems indicated. The work does not cease with such instruction given in the Clinic, but the follow-up nurses or social workers see to it, as far as possible, that the instruction given is utilized in the home.

Next is the *Physical Development Clinic*, where aid may be given to improve the condition of a child who physically is not making proper progress. Here the fitting exercises are instituted to correct certain bodily defects, and to promote good posture. The nurse then sees that the exercises which have been ordered are carried out in the home.

Third in order I may mention the *Prenatal Clinic*. There is a special waiting room for expectant mothers; a clinic room where they are examined by the obstetrician; a room where the health teacher may give them instruction in

cooking; a room where they receive lessons in and the opportunity for the construction of the garments for the expected infant, the material for the clothing being furnished at cost price to those who are needy. Then the prenatal nurse continues to visit the women in their homes, in order to see that matters are being conducted properly there.

In addition to these clinics, arrangements are also made in the institution to give demonstrations to groups of mothers upon the proper preparation of food for the children and how this may be done in an economical manner, and the proper diet for the different periods of infancy and childhood is taught. A great deal of attention is given, too, to the children of the pre-school and the school age, and health clubs for girls and for boys have been established, while there are classes also for the instruction of the growing girls in the care of children, sewing, cooking, and the like. The Department also makes the attempt to find means for summer vacations for children especially needing these, and to secure mechanical apparatus for poor children referred from the Orthopoedic Dispensary who require braces and the like. We have also started in the Department a Clinic for the Prevention of Diphtheria, where the Schick test is performed, and toxin-antitoxin given to those needing it.

Of course none of these things are new; but we feel glad that we have been able to group under one department so much diverse work in the line of preventive pediatrics.

I have already talked longer on this subject than is wise, and have not by any means covered it, and I must go on now to the second function of a children's hospital, which is to teach women to do nursing and in other ways to care for children, not only in the wards but among the clientele outside as the children leave the wards. First, I do not wish in any way to speak in a manner derogatory of social service work, because I do not feel this. But I would like to emphasize my belief that no social service worker or follow-up nurse can do the best for children unless she has actual working knowledge of the nursing, hygiene and diet demanded by sick and well children. What wages the father of the family makes, what is the condition of the

house, and many other matters regarding which a social service report is often full are of undoubted value; but of less value than the ability from personal experience with children to teach the mothers by a practical demonstration just how things are to be done at home in the way of bathing, clothing, feeding the baby, and similar matters. That is to say, the nurses for follow-up work, for attendance in the Health Clinic, and the like, ought to be nurses trained in the management of sick children.

This brings us, in the second place, to the consideration of the trained nurses for work in the hospital and dispensaries. In former times, when material out of which trained nurses were to be made was more abundant than it is now, we tried in the Children's Hospital to have our nurses young—often younger than in hospitals of other nature. This was because our Superintendent at that time believed that at this age they were more adaptable to the needs of the sick infant and child, and more readily instructed. However, I do not lay stress upon this in these times when we have to take what we can get. The principal thing is that the nurses should love their work, which, of course, they probably already do or they would not have selected a children's hospital for their training. I have known general hospitals where some of the nurses, in the course of their training, were obliged to spend a certain time in the children's ward, thoroughly disliking their work there. It is difficult to know what is best to be done under these circumstances. It is certainly hard on the little patients to have a caretaker who is antipathetic. From the pediatricist's point of view, at least, it seems almost better that such women should be excused from service in the children's department. Certainly no woman should undertake the nursing of children who is not fond of the little ones. It is hard work, and demands a heart in sympathy with the child to make it a success.

But this is a digression. The hospital should train the nurse thoroughly in all the little things which have nothing to do with adult life, such, for instance, as how to prepare the food according to the prescribed formula, how to hold the baby when it is getting its food, the details of dressing,

bathing, and the like, and many other things besides, including some which are in the province of the physician, but of which a knowledge by the nurse will be of great aid to him in the line of diagnosis and treatment. I refer to such matters as the recognition of the different sorts of cry and their causes and indications; the character of the stools (which nurses often cannot describe sufficiently accurately to be of any use); the kinds of cough and what they mean; the manner in which a child takes its nourishment, or rather fails satisfactorily to take it, as indicating sore throat, sore mouth, abdominal pain, loss of appetite, psychic disturbance, or whatever the cause may be; and other matters which will suggest themselves to you. The physician often *must* depend on the nurse's description of such things, and a children's hospital should see that they are well taught to the nurse. There is, in my experience, a growing demand for well trained nurses for children; not so much those who have gradually gained their experience in private practice, but those who have from the beginning been specially trained to be nurses for sick children. The demand for these is much in excess of the supply.

Third, I would refer to trained nurse maids. It is not always feasible, or perhaps best, to have a school for nurse maids in the same institution as maintains a school for nurses. However this may be, the institution which can establish a successful school for nurse maids is doing a fine work. Reliable, really reliable, nurse maids are among our great needs. I mean women who have been well taught and are yet young enough to be willing to adapt their own views to those of the physician and the mother. The old, self-taught, yet ignorant nurse, usually of foreign extraction, is sometimes, it is true, a jewel, but often a pestiferous individual. "Ye can't tell me anything about children," so she says, "sure and I've buried nine of them." This matter is so well known to you who have had anything to do with nurses of this type that I need say nothing more.

The last function of a children's hospital to which I shall refer is that of a place for instruction of the medical profession. Not so many years ago this was far from being

understood by the managers of hospitals and even by the visiting staff. The interne was chosen because one had to have him to do the work. His right to be taught something beyond what he could pick up was not often thought of. Because there is now no place in which matters are more favorable for teaching purposes than they are in the Children's Hospital of Philadelphia, I do not mind referring to the way they used to be a good many years ago. When I first commenced to teach undergraduates there it was entirely on sufferance by the Board of Managers, and without any sympathy from them, combined with the openly expressed opposition on the part of the superintendents, who did, I felt, everything they could to put difficulties in the way. There were all sorts of regulations as to the number of students who could attend the classes, against taking any students into the wards, and so on. To some of us it seemed that the institution was more a carefully guarded home for nurses than it was anything else. I used to maintain, without making any visible impression on anybody, that much more good could be done the world by teaching a body of students how to diagnose and treat a disease in a child shown them, than by merely and only treating the child itself. I am glad to say that all the former opposition has changed. Our managers, who are thoroughly in sympathy with the Staff, feel as we do, that to do the greatest good to the greatest number can be accomplished only by the use of the hospital for teaching purposes. How true this is of our Hospital at the present time may be seen from the fact that the institution is used for the instruction of both graduate and undergraduate students. In all there are now thirty-one members of the Staff engaged in teaching, with a total of 839 hours of instruction during the academic year of eight months. Furthermore, my belief in the value of a hospital for teaching purposes applies also to the selection of the Staff. I do not believe that, when there is any choice open, a man, thoroughly able though he may be to treat the cases, should be elected to the Staff, unless he is desirous of transmitting his experience to others, directly or through the medium of medical literature. Indeed, what applies

to the teaching of undergraduates, comparatively small in number in any one hospital, is of still greater force as it applies to the medical community at large. To be chosen one of the Staff of a children's hospital gives a wonderful opportunity for seeing numerous cases, for drawing proper conclusions from the study of these, for carrying out and testing certain lines of treatment or of feeding, or for adding by experimental research-work to his own experience and knowledge; and the physician, in my opinion, has no right to keep this knowledge to himself. It is a selfish act. If he thinks he is too busy or feels that he is unable to describe his experience in this way, he should, I feel, make room for someone else who recognizes it as his duty to do his little share towards the advancement of the knowledge of the pediatric profession at large, if such a one can be found.

Such, gentlemen, are some of my ideas about the functions of a children's hospital; and, as I said at the beginning, this applies, of course, with but few modifications to a children's ward. How does it apply to this Hospital? You know the conditions which obtain here better, of course, than I, and yet I hope you will permit me to make some suggestions. You are just beginning, and you may say, in a small way — although it seems to me that twenty-eight beds is a pretty imposing beginning. When I started in my work at the University of Pennsylvania I had only two beds. You have as yet, I understand, no dispensary service for children. Conditions, I am sure, will sooner or later compel you to have one, for the treatment of cases well enough to leave the ward, and for those of the poor of the city not ill enough to be sent into the ward. I have been reading over the excellent outline of instructions given in your Training School for Nurses. If you are not doing it already, I am sure you will soon be establishing follow-up nursing for the children you send home, and I hope a department of preventive pediatrics as complete as circumstances will permit.

Last, regarding the instruction of the medical public. You are connected I know with a medical school. I have been reading over your report for the year 1921-22—a splendid showing—nearly 4000 patients treated; nearly

2500 operations; 324 infants born in the Hospital; 860 cases given X-ray examinations; over 17,000 examinations made in the pathological laboratory; and a large variety of medical and surgical conditions encountered. It would have been a pity for so much good material for teaching to be lost to the profession. But it is not to be lost, and it can be utilized still further. There must be numerous physicians, both in this city and in surrounding districts, who would jump at the chance of taking short post-graduate instruction, not only in the pediatric ward but in other departments of the Hospital; brushing up on certain subjects in which they are especially interested, or in which they felt need of further experience, and thus making themselves more useful to the community. It seems to me to be a splendid opportunity for a hospital, not over-burdened by the work of undergraduate teaching, to undertake a higher class teaching of this sort.

However, these are only suggestions; but I am sure that under the able management which I believe you have you will put them into practice eventually, and more or less completely; not, of course, because I or anyone else suggests them, but because they are the obvious and generally recognized proper course of any hospital which aims to do its best.

FACTORS INFLUENCING THE ACTION OF DIGITALIS ON THE HEART

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In this paper an attempt will be made to review certain phases of the digitalis problem and to consider some questions which arise in digitalis therapy. Such a review has seemed desirable in view of the fact that the complexity of the subject of digitalis action is not always recognized by those employing this drug in practice.

As is well known, a great many digitalis preparations have been put on the market in recent years, and for each one special claims have been made. Often the merits extolled have not been substantiated, either by the experience of the physician or by experimental laboratory tests. We may consider the factors, therefore, which influence the results in the employment of digitalis and allied drugs.

I. The composition of cardiotonic glucosides. The active principles of digitalis and allied crude drugs belong to a group of compounds called "glucosides," because upon hydrolysis glucose or an allied sugar can be split off from the molecule. Up to the present time only a few glucosides of this character have been isolated. Those obtained in purest form are (a) Digitoxin. This is a crystalline body with the empirical formula— $C_{34}H_{54}O_{11}$. (Kiliani.) It is easily soluble in alcohol but only sparingly in pure water. Certain organic substances, present in the leaf, help to put it in solution in water, however. It is the most active and most abundant constituent of digitalis and produces all of the characteristic cardiac effects. In addition, it is very irritant to tissues locally and has certain undesirable side actions. Thus, it produces marked vasoconstrictor effects, mainly in the splanchnic area, and causes some hemolysis.

(b) Digitalin true, of Kiliani. This is an amorphous, or semi-amorphous, substance, believed to have the formula $C_{35}H_{56}O_{14}$. It is soluble in alcohol and also in water to some extent. It occurs in the digitalis leaves and seeds in con-

siderable quantity and is about one-third to one-half as active as digitoxin.

(c) Ouabain. This is otherwise known as strophanthin, crystalline strophanthin, Merck; g-strophanthin, Thoms, etc. It was first isolated from the wood of *Acocanthera ouabio* (hence name "ouabain") in 1888 by Arnaud and later from *Strophanthus glaber* by him. Thoms found it in 1910 in *Strophanthus gratus*, probably identical with *glaber*, and it has been obtained from two other species, *hispidus* and *Kombé*. It has the formula $C_{30}H_{46}O_{12} \cdot 1-9 H_2O$; is crystalline and soluble in water and alcohol. It has the typical cardiac action of the digitalis glucosides. Ouabain should not be called "strophanthin," as there are probably several bodies in *strophanthus*, as there are in *digitalis*, which are chemically and pharmacologically similar. The words "strophanthin" and "digitalin" are confusing, as they do not refer to chemical entities, unless they are specifically made to do so by some qualifying term; crystalline strophanthin, Merck; true digitalin, Kiliani, etc. Moreover, pharmaceutical firms have added to the confusion by coining all sorts of trade names for substances which are always mixtures of active principles and other material.

Of the above mentioned three so-called "pure principles," ouabain is probably the purest from the chemical viewpoint.* Besides these, there are other bodies, such as "digitalein," of doubtful composition, but which are very active. In fact, there must be a large number of substances, not yet isolated, in pure form, which can be extracted from the crude drug by various solvents, such as water, alcohol, chloroform, benzol and acetone. Indeed, it is possible by alcohol, water or acetone alone to extract practically all of the active constituents of the digitalis leaf. Along with these are taken out certain other bodies, as "digitonin," which do not exert the specific heart effects. This latter body is hemolytic, for example.

It is evident from these few facts that any extract, such

* Brauns and Closson have isolated a very pure crystalline strophanthin. According to them, it has the formula $C_{40}H_{56}O_{15} + 3H_2O$.

as the tincture, fluid extract, or infusion of digitalis, is a complex mixture of substances differing widely in chemical, physical and pharmacological properties; hence the desirability of isolating the active principles in pure form.

There are reasons for believing that the several active principles are closely related and that their action on the heart is due to a common molecular structure, or, perhaps more strictly, to a common nucleus. Schmiedeberg long ago suggested this, and Hatcher has recognized it in his work on digitalis standardization. More recently, in developing in our laboratory a chemical method of digitalis assay, Dr. Knudson has used a color reaction, reported by Baljet,¹ which is given by bodies having a typical digitalis cardiac action and which in common have in their molecule a chemical group known as the "lactone" group or "lactone" function. The reagent used is an alkaline picric acid solution, and the procedure as developed by Dr. Knudson reduces the time required for a digitalis assay from several hours, or even days, to less than an hour. To establish this test, which is carried out by the means of a colorimeter, it was necessary to make biologic assays along with the chemical. The writer did this on a large series of cats and in general the results, which will be published soon in the *Journal of Pharmacology and Experimental Therapeutics*, have agreed in a striking way.*

II. Administration of digitalis. The practicing physician is generally more concerned with the effects of drugs than with their chemical constitution. He is interested in the scientific side, to be sure, but he gives his attention more to the practical aspects of drugs. If he fails to get the desired results the natural thing for him to do, perhaps, is to blame the drug for the failure. He may doubt its potency. He should be as certain as possible that a given drug is up to standard strength, if a standard has been devised, but it is important to remember that there are other factors to be

*A word may be said here about the use of cats in digitalis experiments. These animals are more satisfactory than other kinds, mainly because they react to digitalis much as man does. In fact, almost every peculiarity of digitalis action in man can be reproduced in cats.

considered in instances of inactivity, and this is especially true of digitalis. In this connection we may discuss absorption in the alimentary canal.

There is no doubt that absorption of one and the same digitalis constituent from the alimentary canal can vary in a single individual, and when it comes to absorption in different individuals the variation may be more striking. These variations have to be traced to the complexity of conditions in the lumen of the canal and to functional differences in the absorbing structures. The matter is further complicated by the differences in absorbability of the different digitalis glucosides, differences that cannot be ascribed wholly to unlike solubilities. The digitalis principles proper, e.g., digitoxin and digitalin true, are absorbed with unequal, but fair, rapidity from the small intestine, but the strophanthus principles are so poorly absorbed that their administration by mouth is practically useless. In the light of the experiments by Hatcher and Eggleston³ on ouabain, this is probably due in part to the destruction of strophanthus principles in the large intestine. Absorption is so variable and uncertain that a comparatively small dose may become a very dangerous one (Hatcher and Bailey^{3a}). In view of this fact, ouabain and other strophanthus preparations are sometimes given intravenously or intramuscularly, as are also certain digitalis preparations. This is a dangerous procedure unless one knows that the heart is not already digitalized to some degree. It is doubtful if it is generally appreciated that digitalis action may persist for several weeks without the ordinary clinical signs of any such action. This feature of persistence is dealt with later, so that it is sufficient to state now that persistence of digitalis action is very important because of the variable length of time it lasts.

Though a number of deaths have occurred as a result of insufficient care in the use of the intravenous method, Vaquez and Lautembacher⁴ report a record of almost 2000 cases of intravenous injections of ouabain without harm or fatality. When used with proper caution this method is practical and justifiable in extreme cases, particularly in acute decompensation complicated by failure to secure

effects by oral administration. In such cases, the failure by the oral route may be due to inactivity of absorbing structures, or, as a result of the general malnutrition, to a temporary sluggishness in response by the heart. Some of these cases seem very hopeless but, if there is no reason to suspect any considerable myocardial degeneration, careful intravenous or intramuscular injections of ouabain should be tried. Remarkable results have been obtained by this more radical procedure in appropriate cases. In such instances the graphic methods, especially the electrocardiograph, help out in giving more accurate information as to the cardiac condition and to the effects of treatment. Levine⁵ has given us some idea of the margin of safety in the intravenous method, by showing that, in cats, the toxic effects of ouabain and digitalis, as indicated by the appearance of premature ventricular beats, begin to show when about fifty per cent of the minimal fatal vein dose is given. Probably a similar relation holds in man, but in practice relatively smaller doses are used.

The same care must be taken in the administration of massive doses by mouth, as in the Eggleston method.⁶ This procedure is ordinarily safe if one knows precisely what the patient has had and how long it has been since the digitalis was given, facts not always easily obtained. Owing to the uncertainty as to the time required for complete elimination of digitalis bodies, at least a week should be allowed before the administration of a massive dose of digitalis in any form. In some cases a longer time is necessary, for, as will be shown later, digitalis effects may persist in the heart for three weeks or more in some cases after the drug has been stopped.

Under circumstances which preclude the more accurate control of repeated doses, one must rely on the commonly employed methods of observation. It frequently happens that one of the earliest signs observed is nausea, or even vomiting. This is ordinarily regarded as evidence that absorption has taken place and that the digitalis should be reduced or withheld for a time. It has been taught by some in authority that it is quite safe to push the drug to the nausea stage, unless there is some contra-indication, for it was believed that the nausea, or vomiting, is a sign of

the central nervous system (vomiting center) reaction and that, even in the absence of any definite immediate cardiac response, one could expect that heart effects would soon follow. Such teaching was in vogue before the more accurate studies by means of the electrocardiograph were made. It is true that the patient is partly protected against severe digitalis intoxication by the emetic and purgative action of the drug when it is given by mouth, but, as will be seen presently, emesis itself may be a sign of cardiac effect rather than one on the vomiting center. Furthermore, it is possible for a pretty severe toxic action on the heart to develop before emesis, because in animals (cats) it is known that death can occur from cardiac standstill without emesis at all. Eggleston and Hatcher⁷ observed this, and we have seen it in our own laboratory.

In this connection, an interesting case may be cited. The writer saw lately a patient develop for a few hours an irregular pulse and typical electrocardiograph signs of auricular fibrillation under large doses of the fluid extract of digitalis before any signs of nausea. On reducing the dose the pulse became regular and the electrocardiogram normal, along with decided clinical improvement. On repetition of large doses about a week later nausea developed without any disturbed heart action and the dose was again cut down. The experiment was not repeated owing to the continued improvement in the patient's general condition. One could not say with certainty that digitalis caused fibrillation in this case, for it might be argued that we had to do here merely with a coincidence. The fact remains, however, that the fibrillation ceased when the digitalis was stopped. Mackenzie⁸ has reported a similar case, with normal heart rhythm, only in his patient the fibrillation continued for four days. He cited another case, with an obscure type of tachycardia in which fibrillation of the auricles followed digitalis treatment, the fibrillation being suddenly followed by a norm rhythmical and slower pulse.

Of importance is the ratio of the emetic dose to the fatal dose of various cardiac glucosides. Eggleston and Hatcher⁷ showed that true digitalin is the most emetic. The average emetic dose is twenty-two per cent of the fatal dose. Then

come ouabain, digitalis, digipuratum and digalen, with an emetic dose, forty to fifty per cent of the fatal. Digitoxin (relatively the most powerful as regards general effects on the heart) and amorphous strophanthus have an emetic dose which is about fifty-eight to sixty-five per cent of the fatal.

Of further interest is some recent work on the mechanism of this emetic action. Hatcher and Weiss,⁹ working with cats, found that the application of ouabain directly to the medulla oblongata does not induce vomiting, whereas, introduced into the circulation, it quickly does. If the nerve supply to the heart is completely interrupted, then intravenous injections of ouabain fail to cause emesis, which, however, can still be evoked by mercuric chloride, showing that the motor part of the vomiting mechanism was intact in their cats with the heart devoid of all extrinsic nerve supply. They believe, therefore, that ouabain (and the digitalis glucosides in all probability) causes emesis by exciting some peripheral nerve (or other) mechanism in the heart itself, intensifying the impulses, which ordinarily are ineffective, to such a degree that vomiting results. The mechanism can be regarded as protective in the sense in which such an expression is ordinarily employed.

These experiments are of great interest, indicating, as they do, that nausea and vomiting produced by digitalis and allied bodies are signs of primary cardiac and not central nervous system excitation. The point of this discussion is, then, that one is not necessarily within the safe limit in pushing digitalis to the stage of nausea. By any method of administration of digitalis the margin between the therapeutic and toxic dose is small, compared with the margin of safety in the use of some other toxic drugs. In fact, with digitalis the effective therapeutic dosage often induces definite toxic cardiac reactions. This does no harm if the reaction is recognized and the dosage reduced.

III. Elimination of digitalis bodies. It is necessary to define here the term "elimination" as used in this paper. The term, as ordinarily loosely employed, means the removal of a substance from the body. It is well known that a poison may disappear from the blood, be stored in the tissues somewhere, and actually be excreted from the body

as a whole very slowly. In the process of removal from the body the toxic agent may be excreted as such or be rendered inert by being combined with some other compound, and then be removed by one or more of the excretory organs. Again, as in the case of digitalis, it may be in large part destroyed in the tissues. The method of excretion depends upon the nature of the substance.

As far as the heart is concerned, we may say, provisionally, that digitalis is eliminated completely when we no longer recognize, by the best means at our command, the effects of the drug in the organ and when we can again obtain the characteristic reactions by renewal of the digitalis. Hatcher and Eggleston,¹⁰ in a study of elimination of digitalis bodies, propose the expression "essential elimination" for this idea and it is adopted in this paper.

The actual mode of elimination of cardiogenic glucosides is imperfectly understood and need not be discussed here. Suffice it to say that great differences in the rate of elimination exist. To eliminate a barely sublethal dose of ouabain requires only three or four days in the cat and only a few hours in the rabbit. True digitalin is less rapidly excreted and digitoxin the least rapidly, judging from the work on cats, which may retain digitoxin three or four weeks after a large dose. This retention in cats corresponds well with that observed in man.

On the other hand, some constituent (perhaps there are several) apparently exists in the digitalis leaf which has true digitalis action but which is eliminated very rapidly. According to work in the Cornell laboratory of pharmacology¹¹ this body is a chloroform soluble one, but little else is known about it. If such bodies exist, we can more readily understand the variability in the persistence of digitalis action, for, depending on the type of glucoside, complete elimination may take anywhere from a few hours to three or four weeks.

IV. Persistence of digitalis action and cumulation. The term "persistence" must be defined here for our particular purpose. By "persistence" is meant the continuation of the *specific, definite effects* in the heart itself—effects which can be recognized by objective graphic methods,

after the patient has absolutely ceased to take the digitalis. The secondary physiologic effects of a general character, which persist for an indefinite time, are excluded by our definition. Thus limited, the term "persistence" is not synonymous with the word "cumulation," so loosely used. Cumulation is best defined as the slower or faster accumulation of a drug in a tissue, with the result that, with further administration, there is a tendency for specific effects to develop suddenly. It is by virtue of the tendency of digitalis bodies to remain in the heart that cumulation is possible. Is this the whole story, however? Are persistence of action and cumulation confined to the heart? That would seem to be the usual impression; but the cardiac effects are not due entirely to direct action on the heart. We must take into account the action on the vagus mechanism. This latter action is largely, if not wholly, central, and results, when it is present, in slowing of the heart rate. The writer has often seen the heart rate reduced to less than half the normal in a cat, whereas in other instances, with the same digitalis specimen, there was no slowing at all. In the human subject there are also such contrasts. We do not know to what extent the vagus effects modify the direct action, but they must play some role because of the great influence the vagus has on the metabolism in the heart tissue. The experiments of Robinson and Wilson¹² on cats show that dividing the vagi decidedly affects the onset of certain types of digitalis effects. Also, R. H. Halsey¹⁵ in 1919 reported a case of auricular fibrillation in which the administration of digitalis so increased the pulmonary reflex inhibitory activity of the vagus that great distress resulted. Relief was obtained by injections of atropine sulphate, and discontinuance of the digitalis. Cumulation effects may thus not be wholly due to storing of the drug in the heart. In any event, the heart takes up only a very small fraction of the amount available. Moreover, the combination of the glucosides with the heart substance seems to be independent of the concentration of the glucosides in the blood, within certain limits of time. That is, a heart can be fatally poisoned with a given dose of ouabain for instance, within a few minutes or several hours, depending on the rate of injection

(Hatcher,¹⁴ Levine⁵). Some sort of a quantitative relation or reaction exists between heart and drug. The length of time the combination persists apparently determines the duration of the action. It cannot be said that the contention of some that the action outlasts the drug has been founded on reliable experimental evidence. If the specific action on the heart did outlast glucosides themselves, we should have to revise our conception of cumulation. Eggleston¹³ contends that the action lasts as long as the drug is present in the cardiac tissues and no longer. How long is this time, then? Hatcher¹⁴ gives the literature on the experimental evidence bearing on this question and shows by his own work that the persistence time varies in different animals to a marked degree and also varies with the different digitalins in the same animal. As a result of this work, Eggleston¹³ found in 1913 the same to be true in man. In 1915, Cohn, Fraser and Jamieson¹⁶ showed by means of the electrocardiograph that specific effects on the heart (inversion of the T wave) lasted as long as twenty-two days, following a single dose of digitalis (digipuratum).

Experimental work of this sort has shown that after a single large dose of digitalis, in a readily absorbable form, the concentration reaches a maximum in the blood quickly and quickly declines. The rate of rise and decline varies with the rate of absorption into, and eliminations from, the blood. The concentration in the blood and the kind of glucoside present determine the *rapidity of action* on the heart, but, as stated above, the final end point -- the quantity necessary to stop the heart -- is independent of the concentration in the blood. The rate of elimination from the heart itself is another matter and depends to a large degree on the type of glucoside. Thus ouabain is comparatively rapidly eliminated and digitoxin much less quickly. The processes involved are obscure. Regarding the cumulation, or fixation, of these bodies in other organs not much is known,¹⁰ nor do we know how such cumulation can affect the persistence of these substances in the heart.

V. The heart itself. So far in this paper, nothing has been said of the heart itself as a factor in digitalis therapy. Aside from the many conditions which determine the

functional peculiarities of an organ, such as circulatory, nutritional and other conditions, there are doubtless certain inherent, and so far unknown, factors in the heart itself which make one heart react differently from another. It would be interesting, but undesirable, to speculate along this line. Tolerance and susceptibility are probably to a considerable extent phenomena based upon inherent cardiac states or processes, that is, metabolic changes.

Digitalis cannot put energy into a heart, except indirectly. We must not expect too much of this very valuable drug. The heart that reacts best to it is, obviously, the one which has the capacity to do so. No doubt the failure to respond to digitalis is sometimes due to the fact that the nutrition of the organ has not been properly attended to by appropriate supporting measures in diet and by careful attention to the organs of elimination.

VI. Pharmaceutical preparations of digitalis. It would lengthen this paper too much to treat of these, except briefly. Aside from the standard tinctures and fluid extracts, there are several reliable preparations in powdered form on the market, such as digipuratum, digipoten, digifoline and various others. These dry forms keep well and are convenient to give. Often the cost is too great and as a rule they have no advantages, as far as effects go, over a good tincture. However, it sometimes happens that better effects are obtained with the solid forms than with tinctures or extracts. There is conflicting testimony on this point, however. Claims that nausea and vomiting have been eliminated by the use of this or that new preparation must be accepted with hesitancy, because the effective therapeutic concentration in the blood is practically equivalent to the beginning of mildly toxic concentration. At this stage vomiting, or at least nausea, is likely to appear, no matter what the composition of the preparation may be. If a preparation owes its activity mainly to digitoxin, it should be possible, by careful dosage, to get good effects without nausea. However, one does not know what the main constituent in a given preparation is. The methods of digitalis assay do not help us here. They simply give us an idea of the total activity of the preparation, and, as we have

seen, this activity may be due to a preponderance of digitoxin, or to some other constituent. From what is now known of the relative emetic activity of the various constituents and of the persistence of the cardiac effects, it would seem that if a digitalis preparation is comparatively free from the tendency to produce nausea and vomiting and if the heart effects last well with moderate doses, the main constituent in the preparation is probably digitoxin. This may be the reason why some physicians find it more satisfactory to use some certain preparation rather than experiment with the products of various commercial houses.

VII. Deterioration of digitalis preparations. Finally a word may be said about the deterioration of digitalis preparations. In the form of tinctures, and other alcoholic extracts, and in the dry (powdered leaf) form, there is not likely to be much change in potency, even over a space of several years, if the material is kept in well-stoppered containers. Much evidence could be adduced to support this statement. Infusions do deteriorate quite rapidly, however, as is well known.

RECAPITULATION AND CONCLUDING REMARKS. In the preceding discussion, the composition of the digitalis and allied bodies was briefly considered. It was shown that those which are known best belong to the compounds called glucosides. The introduction of digitalis and strophanthus preparations into the body was taken up and the factor of absorption treated with special reference to the administration of large doses. In this connection some new ideas about nausea and vomiting, caused by digitalis and strophanthus principles, were presented. The possibility of digitalis inducing auricular fibrillation was mentioned and cases were cited. Elimination of the digitalis and allied principles was only briefly considered, as little is known about that subject, but the relation of the rate of absorption to the rate of elimination and to cumulation was discussed at some length. It was shown that the different principles probably unite in some quantitative way with some constituents of the cardiac mechanism, and that recently some advance has been made in the study of this phase of

digitalis action. The fact that the heart itself is to be considered as a special factor was emphasized. Finally, a few remarks were devoted to commercial preparations and to their stability.

The object has not been to emphasize primarily the dangers in digitalis therapy. Probably enough stress has been laid upon this phase of the subject in the literature. Experienced clinicians are of the opinion, pretty generally, that the fault, in cases of failure to secure effects, is many times due to timidity in the administrations of the drug. Not enough is given. This is probably true, yet no one would deny that there are certain dangers. These are greatly minimized by thorough knowledge of the drug in question. In spite of the variable factors emphasized in this paper the reactions of the heart to digitalis are quite definite and they can be controlled. If they do not occur in a given case, there can be only two reasons: either the drug, assuming it is of normal potency, has not reached the proper concentration in the blood (and hence in the heart) or else the heart is incapable of response to it. Of course, a combination of the two situations may exist.

REFERENCES

- ¹BALJET, H.: *Schweiz. Apothek. Zeit.*, 1918, lvi, 71, 84.
- ²HATCHER, R. A., and BAGLEY, H. C.: *Journ. Am. Med. Assoc.*, 1910, lv, 1697.
- ³HATCHER, R. A., and EGGLESTON, C.: *Journ. Pharm. and Exp. Therap.*, 1919, XII, 405; *Am. Journ. Med. Sci.*, CLX, 625.
- ^{3a}HATCHER, R. A., and BAGLEY, H. C.: *Journ. Am. Med. Assoc.*, 1910, LV, 1697.
- ⁴Vaquez and LAUTEMBACHER: *Bull. Acad. Méd.*, (Paris), 1917, lxxvii, 405.
- ⁵LEVINE, S. A.: *Journ. Exp. Med.*, 1919, XXIX, 485; *Arch. Int. Med.*, 1920, xxvi, 293.
- ⁶EGGLESTON, C.: *Arch. Int. Med.*, 1915, XVI, 1; *Journ. Am. Med. Assoc.*, 1920, lxxiv, 733; *Am. Journ. Med. Sci.*, N. S., 1920, CLX, 625.
- ⁷EGGLESTON, C., and HATCHER, R. A.: *Journ. Am. Med. Assoc.*, 1913, lx, 499.
- ⁸MACKENZIE, JAMES: *Heart*, 1911, II, 335.
- ⁹HATCHER, R. A., and WEISS, S.: *Arch. Int. Med.*, 1922, XXIX, 690.
- ¹⁰HATCHER, R. A., and EGGLESTON, C.: *Journ. Pharm. and Exp. Therap.*, 1919, xii, 405.
- ¹¹HATCHER, R. A.: *Journ. Am. Med. Assoc.*, 1920, lxxv, 460, 463; *Journ. Pharm. and Exp. Therap.*, 1921, XVII, 37.
- ¹²ROBINSON, G. C., and WILSON: *Journ. Pharm. Exp. Therap.*, 1918, X, 491.
- ¹³EGGLESTON, C.: *Journ. Am. Med. Assoc.*, 1912, lix, 1352.
- ¹⁴HATCHER, R. A.: *Arch. Int. Med.*, 1912, X, 268.
- ¹⁵HALSEY, R. H.: *Proc. Soc. Exp. Biol. and Med.*, 1919, XVII, 36.
- ¹⁶COHN, A. E., FRASER, F. R., JAMIESON, R. A.: *Journ. Exp. Med.*, 1915, XXI, 593.
- ¹⁷BRAUNS, O. H. and CLOSSON, O. E.: *Journ. Am. Pharm. Assoc.* 1913, II, 604.

THE CONTROL OF CANCER

*Read before the Medical Society of the County of Rensselaer
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N.B. The word "cancer" in the text includes all types of malignant growths.

The idea that cancer is a hopeless condition is so firmly and deeply rooted in the public mind that any proposal to check or control it has received scant attention. Even physicians view the proposal with considerable skepticism, for they too seem inoculated with the inertia of what they too often feel is a hopeless situation.

Nevertheless *cancer is controllable* to a large degree and it is my purpose first to outline the problem and then to outline briefly the way it may be met. In doing this there is no pretense of originality, the object in view being to give wider publicity to a plan devised by others which offers great hope of success.

Does the loss of life from cancer constitute a menace to the public health?

This can be answered very quickly by statistics taken from the bulletins of the United States Public Health Service. In 1900 cancer was the cause of death in 63 of every 100,000 and in 1917 the number rose to 82. In 1920 it was 83.4 in every 100,000. In 1919 close to 90,000 persons succumbed to cancer in the United States and in 1920 10,554 died of this cause in the State of New York alone. Cancer is now a more frequent cause of death than pulmonary tuberculosis or pneumonia in people over forty years of age. From these vital statistics it is believed that cancer is on the increase. It is apparent then that cancer does constitute a serious menace to the Public Health which must command the earnest attention of physicians and all agencies interested in the health of the public at large.

The first step in the eradication or control of any disease is the removal of its cause, but the cause of cancer, though searched for diligently these many years, is not known. Furthermore there is not much prospect, from investigations already made, that any means will be found in the

immediate future that will infallibly cure or prevent the disease. We do know, however, that prolonged chemical or physical irritation of the body tissues is a very important causative factor in cancer and frequently gives rise to lesions that are recognized as precancerous. The removal of irritations of this sort forms an important step in cancer control and is the only means at our disposal at present that aims directly at the incidence of the disease.

With the cause of cancer unknown it remains for us to work with the curative measures at hand, this means with surgery, radium and the x-ray, singly or together. By the use of these measures a much larger number of permanent cures can be effected, provided the patient comes under treatment in the *early and curable* stage. One of the most discouraging situations the physician meets with is the very large number of advanced, inoperable and hopeless cases that seek relief when it is too late. The plight of such patients is sad indeed, especially when we realize that all were, at one time, in a curable stage. In this respect the problem of effecting a cure is exactly parallel to pulmonary tuberculosis.

How can cancer patients be brought to treatment when the disease is early and curable?

The responsibility for bringing this about rests partly with the patient and partly with the physician. So far as the patient is concerned an earnest and intensive effort is being made by the American Society for the Control of Cancer and other organizations to give the widest publicity to the facts about cancer, pointing out the symptoms and signs that mark the onset of the disease. The following facts should be familiar to everyone:

1. Cancer begins as a small local growth which can often be safely and easily removed in the early stages by competent surgical treatment, or in certain favorable cases by radium, x-ray or other methods.

2. The beginning of cancer is usually painless; for this reason its onset is doubly insidious and other danger signals must be looked for and heeded in time.

3. Cancer is not a constitutional or blood disease and there should be no thought of disgrace or hereditary taint associated with it.

4. Cancer is not a contagious disease and there is no danger from living in the same house or from contact with a patient.

5. In any ordinary sense cancer is not inherited. Some authorities believe a certain tendency to the disease may be inherited but this is not clearly established. The disease is so frequent that by the very law of chance many cases will occur in some families. Life insurance companies do not regard cancer in the family a reason for rejecting applicants or increasing premiums.

6. A persistent lump in the breast or continued abnormal discharge or bleeding should take a woman to her doctor forthwith. The increased flowing which frequently occurs at the change of life, is always suspicious, as is the return of flowing after it has stopped.

7. Sores, cracks, lacerations, lumps, and ulcers which do not heal, warts, moles or birthmarks which change in color or appearance are danger signals which demand competent medical investigation and treatment.

8. Persistent indigestion in middle life with loss of weight and change in color may mean internal cancer.

9. Continued irritation in some form rather than a sudden blow, is the usual exciting cause of cancer.

10. A doctor who says "Wait and see" assumes a serious responsibility. No competent doctor will treat a suspicious symptom without making a thorough examination.

A knowledge of these facts will inevitably bring more patients to the physician in the curable stage and the existing pessimism in regard to cancer which is so widespread will in time be replaced by optimism.

This feeling of pessimism is one of the greatest obstacles to be overcome. It makes the cancer patient hide his disease, he even attempts to hide it from himself and prevents him from consulting the physician. In one series of cases it was found that the average length of time elapsing between the onset of the disease and its recognition by the physician was *one year*. It is only by educational propaganda that this ignorance of the facts about cancer can be overcome.

The responsibility resting on the physician has to do chiefly with the recognition of cancer. It is a question of

diagnosis. There is nothing new that can be offered here in connection with the diagnosis. The methods are well known and readily available. The mistakes made are almost always due, not so much to a lack of knowledge of the signs and symptoms, as to careless and incomplete examinations. This is a fair criticism and applies to all of us.

It is by no means uncommon among gynecologists for example, to find women with advanced carcinoma of the uterus, who have been under treatment for months for abnormal uterine bleeding without ever having a vaginal examination.

Bleeding from the rectum is too often attributed to hemorrhoids without an examination. Similar errors of omission in connection with cancer in other locations are equally common. A thorough examination is positively essential if early diagnosis is to be made. This means not only an accurate history and physical examination but also laboratory and x-ray examinations where they are indicated. When a diagnosis can be made in no other way a small portion of the suspected tissue must be removed and examined microscopically. This is particularly important in uterine cancer and often makes a very early diagnosis possible. In the last one hundred uterine curettements submitted for examination, cancer was found in fifteen and in six it was the means of detecting wholly unexpected malignancy in a very early stage. In cancer of the breast when doubt exists a small piece of the suspected growth can be removed, frozen and sectioned and a diagnosis arrived at while the patient is on the operating table. All growths in the breast should be removed, the question to be decided is whether a radical excision or simple removal is to be done.

Once the diagnosis is established the obligation is imposed on the physician of telling his patient frankly what the condition is, providing the condition is one that can be treated, and advising him as to the best way of treating it. This presumes a knowledge of the three methods of treatment at hand if the best results are to be expected.

In the great majority of cases complete removal by radical surgery offers the best results for the patient but in some cases malignant growths are not adapted to surgical removal

by reason of their location and at the same time respond well to radium. This is true of malignant growths of the tongue, tonsils, gums, antrum and larynx. The malignant growths of the skin, rodent ulcers and epitheliomata are particularly responsive to radium, especially when located about the ears, eyelids and alae of the nose and little or no disfigurement results.

Preceding and following the surgical removal of growths that are accessible, radiation of the field is a rational procedure and prevents recurrence to a considerable degree. It must be apparent that in surgical removal some malignant cells may be scattered in the wound or a small gland with metastatic growths may be left behind. The residue may be microscopic and invisible to the operator and yet form a nidus for a recurrence of the growth. It is the destruction of these cells and glands that radiation aims to destroy.

The treatment therefore includes surgical removal where possible, radiation in some locations and a combination of surgery and radiation where the growths are accessible. In choosing the type of radiation it should be borne in mind that radium is more effective when there is a localized growth in which the radium may be imbedded or upon which the rays may be concentrated while the x-rays are better for radiating large areas.

To summarize; the chief points in cancer control are:

1. To bring the patient to treatment in the early stage of the disease by,
 - a.* Making the public acquainted with the facts about cancer.
 - b.* Giving greater publicity to the successful results in curing cancer.
 - c.* Destroying the existing pessimism about its cure by educational propaganda.
2. A more prompt and accurate diagnosis of cancer by physicians.
3. More intelligent employment of all three curative measures, surgery, radium and x-ray, either alone or in combination.

THE HEALTH OFFICER AND THE PUBLIC HEALTH NURSE

*Read before the Health Officers in the Post-Graduate Course in Infectious
Diseases and Public Health, Albany Medical College, Albany, N. Y.,*

June 2, 1922

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Not so very many years ago, the health officer was regarded as somewhat of a public nuisance, and I dare say is still so designated in some communities. The terms health officer and nuisance, while no longer considered synonymous in most communities, are nevertheless still inseparable in the public mind. Practically all alleged nuisances, no matter what their nature, are referred to the health officer, with the expectation that by virtue of his office he must and will investigate and eliminate them.

The great stress which the public lays on this very minor phase of a health officer's duties shows that its conception of a health officer's work, in the light of modern public health, is still too vague and limited. To clarify and increase the people's knowledge of what is meant by public health is a duty of first importance which the health officer cannot afford to neglect. The public is the judge of his stewardship. Its decision, whether right or wrong, is often final. It is, however, within the power of the health officer so to mold public opinion that it will render an equitable and commendatory decision regarding the work of his office.

In view of the inadequate compensation of health officers as a class it cannot be expected with justice that they, although altruistically inclined, will devote all of their time, or even as much of their time as they may desire, to instruction of the public and to the performance of other duties imposed upon them under the Public Health Law. They will therefore require office and field assistance. Perhaps no one is better qualified to render such assistance than is the public health nurse. She can, and as a rule will, relieve the health officer of some of his clerical and routine work and keep him properly informed regarding field conditions. Every nurse will assist to a reasonable extent

in the work of the office, but it cannot and must not be expected that she will impair or sacrifice her field work in the doing of it.

Every fair sized community should support a public health nurse. In fact there appears to be no valid reason why even the smallest and most rural of communities should not have a public health nurse, provided a sufficient number of small communities could be induced to employ one by co-operative support.

Travel interchange between urban and rural communities is today so rapid, frequent and far-reaching that the health of one community is more or less affected by the health of the adjoining communities and even by those at a great distance from it. Every community should therefore keep pace with every other community in matters pertaining to public health. This can be done if every community will support or contribute to the support of a public health nurse to assist the health officer in his work.

Under Section 21-c of the Public Health Law a health officer has the power to employ such number of public health nurses as in his judgment may be necessary within the limits of the appropriation made therefor by the city, town or village. If he has no appropriation it is clear that he must take steps to arouse public interest to the end that a suitable amount be appropriated for that purpose. In the meantime, and even after a nurse has been appointed, there is nothing in Section 21-c of the Public Health Law which prohibits the acceptance of service by his board of health, of a nurse employed by a private or semi-public organization, but in that case due credit for work done by the nurse must be given to the organization paying her salary, provided the work was done under the direction of the health officer.

In any event, whether the nurse be paid out of local municipal funds, by a county, or by a private or semi-public organization, she should report to the local health officer, when working within his jurisdiction, if her services either in whole or in part have been accepted by his board. If not paid out of local municipal funds the nurse should be deputized by the local board of health when she is called upon to represent the health officer.

In speaking of the public health nurse the question suggests itself—how does the work of such a nurse differ from that of a hospital or private nurse? The work of a public health nurse seems to be indicated in the title itself. The word nurse means essentially one who educates or trains. A health nurse is one who educates or trains in matters pertaining to health, and a public health nurse is one who educates or trains the public in matters pertaining to health. She belongs to the people, circulates among all classes, and is generally known to all in the community. In no sense is she or should she be regarded as a bedside nurse. Only in great emergency should she be asked to do bedside nursing.

She is essentially a paid agent of the community delegated to seek out those who are afflicted with communicable disease or suffering in consequence of impaired health or subnormal vigor of mind and body. To her belongs the work of directing them into proper channels of relief. Her work is very diverse in character. The keynote of it all, however, is education of the public in matters pertaining to health. She brings to the home, the dispensary, the school, the factory and elsewhere in the community modern ideas of hygiene and disease prevention.

Many topics are covered in her teaching. At one time it is maternity and prenatal care or child welfare, at another, care of the tuberculous and how to avoid the spread of this and other communicable diseases. Again she may have to deal with problems of insanitation or bad housing or poor ventilation or overcrowding, or poverty relief. Like as not the health of the worker in industry or of the child at school or in the home may absorb her time and energy. These are but a few of the many activities carried on by the public health nurse. Through her efforts many conditions which militate against the public health are brought to light and remedied or eliminated.

As stated in Section 21-c of the Public Health Law all nurses employed by a municipality shall work under the direction of the health officer and may be assigned by him to the reduction of infant mortality, the examination or visitation of school children or children excluded from

school, the discovery or visitation of cases of tuberculosis, the visitation of the sick, who may be unable otherwise to secure adequate care, the instruction of members of households in which there is a sick person, or to such other duties as may seem to him appropriate. She may be assigned to the work of examination or visitation of school children, if the health officer is also the school medical inspector, otherwise such work properly belongs to the school nurse, working under the direction of the school medical inspector. All this gives us a comprehensive idea of the work of a public health nurse.

Now as to the health officer. His duties are executive and administrative. It is his prerogative, his exclusive or peculiar privilege to plan and supervise the work of the public health nurse in his community. This is perhaps the most important part of all his work. He should always bear it in mind.

He must guide the nurse in her work in accordance with well matured plans and in line with progressive public health activities which will meet the needs of his community. His official attitude toward her and her work should always be such as to command and hold the respect and support of the public for both. Unless the nurse is assured that the health officer is interested in her work and that he tries to make it known to the public and to his board, she may take the line of least resistance and confine her efforts to bedside nursing. In course of time this will be apt to create a wrong impression among the laity as to the duties and field work of a public health nurse. It is hardly to be expected that a community will continue to appropriate funds for a nurse under such circumstances, and the health officer may expect public criticism of his office in consequence.

There are many communities in this and in other states in which the health officer has properly gauged the ability and initiative of a newly appointed nurse and has judiciously advised her in her work from the very beginning. Such health officers have learned properly to evaluate the work and assistance of their public health nurses and are able to obtain, with practically no effort, the funds necessary to keep them in service.

There are, on the other hand, communities where the need of the services of a public health nurse could be demonstrated and in which the alleged indifference and lack of interest on the part of the public is more apparent than real. In such communities the board of health could accept, for a temporary period at least, the services of a nurse employed by some private or semi-public organization. The health officer could then assign her to the work of making a community survey and when she has completed it, make public the results of his analysis of the data contained therein. The survey will inform him, and through him the public, regarding the causes of local infant mortality, the extent of unreported communicable disease, of unreported births and deaths, of illegal employment of children, of bad housing and insanitary conditions, of undiscovered tuberculosis and of many other matters pertaining to the public health in his district.

It is scarcely conceivable that there exists in a civilized country a community so dead to the world of action and progress that it would not bend a listening ear and give thoughtful consideration to that which affects its health and social and economic welfare depending on its health. If then the health officer will patiently labor to instruct the public in these matters, he can hope sufficiently to rouse public opinion with the result that a public health nurse will be maintained by his community.

Assuming that a community has appropriated the necessary funds to employ a public health nurse how shall the health officer proceed to secure the nurse? The matter could be taken up with the State Health Department, this being perhaps the simplest and most direct method, since applications for the position of public health nurse are received by the department from time to time. There are, however, many excellent nursing organizations through which such a nurse could be obtained. It should be borne in mind, however, that before appointing a nurse it is always better to arrange a personal interview with her, assuring her that she will be reimbursed for all traveling and incidental expenses. At the time of interview it ought to be clearly stated what she may expect in the way of

salary, equipment, working hours, vacation, etc. This will tend to avoid future misunderstanding and be conducive to a happier and more contented frame of mind on the part of the nurse, than if such matters were left indeterminate.

When the nurse has been apprised of her appointment it is the part of wisdom to make haste slowly and to permit her to devote a week or two to acquainting herself with local conditions, and all agencies and physicians with whom she may be expected to co-operate in her work. In this connection the health officer can be of much assistance to her. He can discuss with her the nature of such co-operation, especially warning her that her work is one which should know no distinction of physician, creed, race, color, sex, occupation, or social status; that it should be co-operatively constructive and that she must school herself to avoid criticism of the work of others in the field, commending where she may justly do so, encouraging where necessary, but always instructing patiently and unceasingly. She should not supplant any agency which she finds already at work but if an agency is working outside of its announced sphere of activity, or in her opinion is not exercising proper judgment, or rendering suitable assistance, she may so report to the health officer.

Until the nurse becomes fully acquainted with the district, it would perhaps be wise not to confine her activities to one special line of work, but to vary the work from time to time, in order that she may come into contact with as many different classes of the population as possible, thus making her and her work known to a greater number.

The health officer should never relinquish his prerogative to plan and to have the nurse carry out his program of daily public health activities. He should know his district, his people and their problems. He should not rest contented because he has successfully met the exigencies of today, trusting that a kindly fate will succor him on the morrow, if necessary. If he measures up to the standard of present day requirements, he will carefully draw up a constructive plan of needful public health activities for his community based on the beneficial results already obtained in other communities. In so doing he will get a larger vision of the

meaning of public health and become more and more interested in his work. The petty annoyances which attend the daily conduct of his office will sink out of sight and the good work of the health officer and the nurse will not fail of public recognition in due time.

If the health officer is to guide the work of the nurse aright, he must study the literature on the newer aspects of public health which is prepared and furnished by the Federal and State Departments, from time to time, and have the nurse study as many of these as he may deem of interest or of educational value to her. In this way he can indicate the character of information which he would have her collect in the field, and the methods to be followed in doing this. If the health officer will take sufficient time and care to instruct the nurse in the use of report cards, spot maps, office filing, etc., at the beginning of her work, he will secure better reporting by the nurse and at the same time greatly reduce the amount of clerical work on the part of both.

Whatever the type of filing equipment, it should be selected with a view to simplicity of operation and avoidance of duplication of records. The forms used by the nurse in her field work, whatever the nature of the work, ought to conform to those in use in the office. In every phase of the work, whether performed by the health officer or the nurse, there must be system and co-operation. The health officer should expect and insist that reports made by the nurse are accurate and concise. If a proper interest is shown by the nurse in her field investigations her reports will reflect these qualities. Furthermore, they will be neatly and legibly written on the proper form and can be quickly and conveniently filed as a matter of public record.

On the other hand, the nurse will often lapse in her manner of reporting if the health officer manifests no particular or special interest in her reports. Such disinterestedness is a grave mistake. Under the law the public health nurse employed by a board of health must work under the direction of the health officer. It scarcely seems feasible that a health officer can properly direct the nurse if he does not have accurate and analytic knowledge of her work in the field, which knowledge he can only obtain on

careful study of a proper report to him by the nurse. This is one of the rocks on which a community health program and its fulfillment are either grounded or wrecked. This should be studiously avoided, since it may and often does cost public confidence and support.

Succinctly stated, every health officer must instruct and direct his public health nurse in her work; the nurse must carry out his instructions carefully and willingly, and then submit to him in concise form, a full and accurate report of her findings. The health officer should analyze her report and bring to the attention of his board and to the local press, all facts which will attract public attention and hold public interest in local health work. Sequel: Continued and often increased appropriations for the maintenance in office of health officer and nurse and, best of all, a satisfied public.

MEDICINE

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INDUSTRIAL MEDICINE

INDUSTRIAL MEDICINE AND HEALTH INSURANCE

Read at the Meeting of the New York Society of Industrial Physicians and Surgeons held at Albany, N. Y., April 17, 1922

By EDMUND N. HUYCK

Kenwood Mills, Rensselaer, N. Y.

Many of you represent companies whose employees are numbered by more thousands than there are hundreds in the organization with which I am connected. I have only had courage to accept the invitation to speak to you because of an experience for about eleven years in a definite plan of industrial medicine and health insurance, which Dr. Smith thought might be of some interest regardless of the number of men and women in the group that it covers.

I suppose every employer becomes interested in industrial medicine in much the same way. He sees workmen losing ground physically, he grows more conscious of the amount of time lost through illness, or some especially bad cases come to his attention. I remember two cases of tuberculosis where I saw men go down and die. It was twenty years or more ago but I knew they should not have gone on working so long as they did. I questioned the quality of the medical care they received and I wondered if any conditions in our plant could have caused the trouble. I began to feel it was our duty to try to afford protection to the workman and his family and to see if, in some way, the economic waste could be lessened.

When we found that the cost of a plan, gradually worked out, could be determined quite accurately, the way to make the attempt seemed clear. We had consulted Mr. Miles M. Dawson, the well known insurance actuary, and from the ages of our employees, their length of service with us and the nature of their employment, he made estimates of cost which have not been exceeded in any one of the years since the plan has been in operation.

The plan covered service pensions, compensation for accidents (there was no state compensation law until 1913), sickness and death benefits and medical service. The employees contribute one per cent of their wages towards sickness and death benefits and medical service, only. The Company guarantees all funds and contributes whatever amount is necessary to meet all costs. In case of illness the employee who has

become a member of the Pension and Benefit Department receives one half pay after the third day so long as he is disabled. If he dies his widow receives 30 per cent of his wages so long as she lives, or until she remarries, with 15 per cent additional for one child and 20 per cent for two or more children. Medical service and medicines are provided and hospital treatment when needed. The largest payment by any employee to the fund is 30 cents a week and the largest payment to any employee from the fund is \$15.00 a week.

We have a physician on salary for part time and a registered nurse for full time. Clinics are held at the plant dispensary every day and the nurse is in attendance during working hours. I know of no other way except through a single medical director, with assistants if needed, in which satisfactory service can be rendered. On account of our health insurance plan, attendance by the same physician on the members in their home when ill seemed necessary.

It is understood, however, that, where it is desirable patients shall be sent to a hospital for full group diagnosis; and all cases of serious illness, where proper care cannot be provided at home, are sent immediately to a hospital. Throat and nose and eye and ear cases are treated by specialists when referred by the department physician, but spectacles are not provided. There has been no dental service, which I believe is a mistake and we are now considering the installation of a service, at least for examinations.

I know the objections often raised to the employment of a single physician, but when he is a man of ability, interested in his work and in the people whom he is treating *when he does his best* - there is little complaint. If he grows careless and does not do good work, the members of the department soon know it and do not hesitate to complain. I have known of members who compared symptoms, which *seemed* different, and the tablets prescribed which *looked* alike, and who then went to a druggist only to learn by analysis that the tablets were alike. They did not waste time in informing their committee. We changed physicians once at the request of the members.

I have given these details because I thought you would be interested in the cost of the plan and would need to know what it covered. As I have said, employees who are members of the Benefit Department pay one per cent of their wages which is deducted from the payroll each week. When the plan was started there were about 250 members - now there are about 500. The original members, then about 98 per cent of all our employees, were admitted without examination. Those entering since must pass a simple physical examination and not be over 45 years of age.

The total cost for sickness and death benefits and medical and hospital service and medicines for the whole ten years (the eleventh year does not end until July 1st) has been equal to 2 18/100 per cent of the wages of the members. The Company, therefore, has paid an amount equal to 1 18/100 per cent of the total wages. The amount paid for sickness and death benefits has equalled 1 27/100 per cent of the total wages and for medical services of all kinds 91/100 per cent. The total cost of the

entire plan including service pensions, compensation insurance and payments for accidents not covered by the State law has been $3\frac{3}{100}$ per cent of the total wages.

This past year, not yet completed, we have tried to be more thorough in the care of cases requiring the attention of specialists. I wish we could be more thorough still but it is expensive. The percentage for medical services this year has increased from 91 100 per cent of wages (the amount for 10 years) to 133 100 per cent. I wish we could command, on part time salaries, services that would cover treatment of eye and ear, throat and nose cases and dentistry, as well as general medicine. I am sure that it would be worth while in a larger plant, perhaps it may be possible for us. I hope we may soon undertake annual physical examinations.

But does the whole plan pay? Is it really an economic gain or is it a burden which the Company should not try to carry? In my own mind I am as certain that it pays as I am of profits that I see on a balance sheet but it is a very difficult thing to show actual proof. If cases of incipient illness are discovered and cured, we cannot say positively that they would not have been cured without our plan of industrial medicine—nor can we estimate with any accuracy the loss to our business if they had not been cured and new workmen had taken the vacant places. But you can feel and believe what is actually accomplished by better health, better personal hygiene and prompter and more efficient care of accident cases.

I once asked Mr. George F. Johnson if he did not find that the activities of their service department paid—and I know of no firm that has done more than the Endicott Johnson Company. "They all pay," said he. "We often wish they did not, we would like to do something that did not bring a return to the Company but it seems impossible." The Endicott Johnson Company earned almost \$8,000,000 last year, paid 7 per cent on its preferred stock, 10 per cent on its common stock and nearly \$2,000,000 to its employees as a share in profits. Some leather companies lost many millions last year.

In reply to an inquiry from the National Industrial Conference Board we sent a brief outline of our plan and they wrote again asking what its effect had been on absenteeism, efficiency, labor turnover, production and relations between management and men. We replied that these were dependent on many things, especially on a mutual confidence that can only be gained through years of association. I know of nothing that will aid more in creating in the working man and woman that respect for the positions they occupy and the organization of which they are members than an effective form of industrial medicine and health insurance in which they take part both in contributions and management.

This cannot come about miraculously from the sudden establishment of industrial medicine and insurance nor from some form of shop committee or industrial democracy; but once confidence is established I believe most employees will go more than half way to meet their employers, and the changes that can be wrought are almost beyond belief. Two hundred and thirty-five workmen in the Packard Piano Company, in 1919, were making twice as many pianos as 265 workmen formerly made. That was the result of changed industrial relations.

Some of you may remember a story which appeared in the *Saturday Evening Post*, called "The Trouble Doc," and the scene in the plant dispensary when the big Italian workman comes in with an injured hand and stands frightened and suspicious against the wall. The doctor leaves him until all the other patients have been treated and then, when the injured hand has been dressed and the fear and suspicion are gone, the man turns and says "You stick-a to me, Doc, and I stick-a to you." Many of you know the "Trouble Doc." I met him at the plant of the General Electric Company at Lynn, Dr. Frank Schubmehl. As we drove away from his plant office to visit another of his dispensaries he stopped his car and said to a big man, "How do you feel?" "I don't-a feel well, Doc," was the reply. "When you see my car over there after dinner, you come in and I will see you," then turning to me, he said; "That's the man who said, 'you stick-a to me, Doc, and I stick-a to you.'" It might well be the golden rule of the industrial physician.

A man works at least eight hours a day—one third of every week day, one-half of all the time he is awake, excepting Sundays. You can't just give him a job on a deadly monotonous machine and expect him to be grateful and enthusiastic forever after. But even at the most tedious work, life will be a different thing to him if he finds with the job, good wages and good health, protection for himself and his family in case of sickness, fair hours and good working conditions, a chance for some recreation and entertainment and that understanding and consideration of his interests that make him feel that he belongs to and plays his part well in the best organization of the kind in the world.

Under such conditions, in normal times, the executive officers, if they do their part, do not need to worry about efficiency or cost of production or the balance sheet at the end of the year.

THE NEED FOR PERIODIC MEDICAL EXAMINATION

Read before the meeting of the New York State Society of Industrial Physicians and Surgeons held at Albany, N. Y., April 17, 1922

By EDWARD H. MARSH, M. D.

New York, N. Y.

As a result of public health work there has been a marked decrease in the general mortality rate over a long period of years. This has been due in large part to the lowering of infant mortality and to the lowered mortality in certain specific communicable diseases, typhoid fever, tuberculosis, and intestinal disease in children in particular.

The future of preventive medicine and public health must look to another field, namely, the lessening of mortality in the so-called degenerative diseases of adult life.

From 1900 to 1911 the general mortality rate for males in the registration area of the U. S. for 1900 decreased for each age period under 44 and increased for each period beyond that. For females the decrease was in all age periods under 54. Above that there was an increase.

TABLE I

Comparison of Mortality of Males and Females by Age Groups
 Death Rate per 1000 Population
 (In Registration States as Constituted in 1900)

Age	MALES			FEMALES		
	1900	1911	Per Cent Increase or Decrease	1900	1911	Per Cent Increase or Decrease
Under 5	54.2	39.8	-26.57	45.8	38.3	-27.29
5-9	4.7	3.4	-27.66	4.6	3.1	-32.61
10-14	2.9	2.4	-17.24	3.1	2.1	-32.26
15-19	4.9	3.7	-24.49	4.8	3.3	-31.25
20-24	7.0	5.3	-24.29	6.7	4.7	-29.85
25-34	8.3	6.7	-19.28	8.2	6.0	-26.83
35-44	10.8	10.4	-3.70	9.8	8.3	-15.31
45-54	15.8	16.1	+ 1.90	14.2	12.9	-9.15
55-64	28.9	30.9	+ 6.92	25.8	26.0	+ 0.78
65-74	59.6	61.6	+ 3.36	53.8	55.1	+ 2.42
75 and over	146.1	147.4	+ 0.89	139.5	139.2	- 0.22
All ages	17.6	15.8	-10.23	16.5	14.0	-15.15

During this time the mortality rate for cancer increased 30.6 per cent, of diabetes 60 per cent, of cerebral hemorrhage and apoplexy 18.8 per cent, of organic disease of the heart 39.3 per cent, disease of the arteries 396.2 per cent, cirrhosis of the liver 14.3 per cent, Bright's Disease 18.1 per cent, making an average increase of 38 per cent for this group of diseases.

TABLE II²

Death Rate per 100,000 of Population for Certain Causes of Death
 Male and Female Combined
 (In Registration States as Constituted in 1900)

Cause of Death	1900	1910	Per Cent Increase
1. Cancer (all forms).....	63.5	82.9	30.6
2. Diabetes.....	11.0	17.6	60.0
3. Cerebral hemorrhage and apoplexy.....	72.5	86.1	18.8
4. Organic Diseases of the Heart.....	116.0	161.6	39.3
5. Diseases of arteries.....	5.2	25.8	396.2
6. Cirrhosis of liver.....	12.6	14.4	14.3
7. Bright's Disease.....	81.0	95.7	18.1
Total.....	361.8	484.1	33.8

According to Dublin² the death rate for organic heart disease is not only a serious problem in the older age groups but is also serious at the younger ages. He states that under 25 the rate is as high as that of typhoid fever, from 25 to 34 it is as high as that of lobar pneumonia; from 35 to 44 it is higher than that of Bright's Disease, and above 45 it is higher than any other cause of death.

Although the general death rate in New York State has been decreasing steadily for years, there has been a steady increase in the combined rates for certain diseases, namely, cancer, cerebral hemorrhage and apoplexy, heart disease and endocarditis, arterio sclerosis, nephritis and Bright's Disease.

In 1911 the combined mortality rate for these diseases was 526.6 per 100,000 in New York State exclusive of New York City. In 1920 the rate was 626.7, an increase of 20 per cent or 100 in each 100,000 of the population. Moreover, this has been a steady increase except for the years 1918 and 1919, when the pandemic of influenza occurred and undoubtedly a large number of persons died of influenza who would otherwise have died of one of these diseases. Not only has the death rate itself increased but the ratio of deaths from these causes to all causes has increased almost 25 per cent. In 1911, 32.8 per cent of all deaths were due to one of the above group of diseases; in 1920, 42.1 per cent were from these causes, a steady increase in percentage in every year except 1918.

TABLE III³

General Mortality Rate per 100,000 of Population and Specific Mortality Rates from Certain Diseases* per 100,000 Population
(N. Y. State exclusive of N. Y. City—1911-1920)

Year	General Mortality Rate per 100,000	Specific Mortality Rate per 100,000	Ratio of Specific to General Per Cent
1911	1602.5	526.6	32.8
1912	1561.5	535.3	33.4
1913	1591.3	544.6	34.2
1914	1560.8	606.0	38.8
1915	1546.6	616.7	39.8
1916	1598.1	633.5	39.6
1917	1622.2	653.0	40.3
1918	2004.0	638.4	31.8
1919	1453.9	594.9	40.9
1920	1487.8	626.7	42.1

* Cancer, cerebral hemorrhage and apoplexy, heart disease and endocarditis, arterio sclerosis, nephritis and Bright's Disease.

Some years ago the Metropolitan Life Insurance Company made seven health surveys involving a total population of 517,757 among the families of insured persons.⁴ In the surveys the morbidity rates for certain diseases were as follows:

	Per 100,000
Pulmonary tuberculosis.....	74.6
Rheumatism.....	164.4
Cancer.....	15
Cerebral hemorrhage, apoplexy, paralysis...	65.8
Organic heart disease.....	62.6
Other circulatory diseases.....	18
Diseases of the kidneys and adnexa.....	38.3
Diseases of the stomach except cancer.....	67.7

making a total of 506.4 per 100,000 of the population sick and disabled as a result of one of these diseases at the times during which the surveys were made.

The total sick and disabled of the individual surveys varied from a minimum of 377.8 per 100,000 among the white population in Pennsylvania cities to 785.3 among the negro population in North Carolina.

TABLE IV

Summary of 7 Sickness Surveys—Metropolitan Life Insurance Company
1915-1917
Total Population—517,757
Rate per 100,000 of those sick and disabled

Disease	All Surveys	Rochester	Boston	Cities, Pa. White	Cities, W. Va. White	W. Va. & Pa. Negro	N. C. White	N. C. Negro
Pul. tb.	74.6	107.3	84.3	54.2	82.4	84.9	84.9	93.2
Rheumatism	164.4	211.7	179.9	127.9	232.7	246.5	202.4	235.1
Cancer	15.0	29.0	18.5	12.7	14.5	20.2	9.2	17.7
Cerebral hem. apoplexy and paralysis	65.8	98.6	83.3	45.1	75.2	56.6	73.6	99.7
Organ. heart disease.....	62.6	81.2	93.6	45.1	106.7	60.6	59.8	66.6
Other circulatory disease.....	18.0	20.3	36.0	12.0	24.2	8.1	20.7	13.3
Dis. of kidneys and adnexa...	38.3	52.2	38.0	28.9	65.5	40.4	50.6	71.0
Dis. of stomach except cancer.	67.7	84.1	74.0	51.9	109.1	68.7	101.2	88.7
Total.....	506.4	684.4	605.6	377.8	710.3	586.0	602.4	785.3

It was also found that of those sick and disabled 28.1 per cent had been ill for one year or more; 6.3 per cent for more than six months and less than one year; 24.7 per cent for more than one month and less than six months; 40.9 per cent for less than one month.

TABLE V

Summary of 7 Sickness Surveys showing Duration of Sickness 1915-1917
of those unable to work. (Metropolitan Life
Insurance Company)

	All Surveys	Roch- ester	Boston	Pa. Cities White	W. Va. White	Pa. & W. Va. C.	N. C. W. & C.
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
Less than 1 month...	40.9	24.5	27.6	44.3	50.0	47.8	42.3
More than 1 month and less than 6 months.....	24.7	16.2	22.2	26.0	26.3	27.3	24.7
More than 6 months and less than 1 year	6.3	9.2	9.0	5.1	5.2	5.7	6.8
1 year or more.	28.1	50.1	41.2	24.7	18.5	19.2	26.2

In Boston the survey included 97,259 persons in 20,497 families, about 13 per cent of the total estimated population of the Greater City in 1916, the year of the survey. The sickness rate was 19.6 per cent per 1,000. About 91.9 per cent were disabled for work. Although the sickness rate was 19.6 per cent for the entire group, at the age of 35 or over the sickness rate was 35.7.

At the request of the Thomas Thompson Trust the State Charities Aid Association made a sickness survey in certain districts of Dutchess County, N. Y., covering the year 1912 and part of 1913. The table showing the morbidity rates for certain diseases is appended and it will be noted that for the whole district covered 16 per cent of the illness discovered was due to one of the chronic diseases discoverable, preventable or postponable, through periodic examination; the ratio varied from 14 per cent in Rhinebeck Town to 22 per cent in Milan Town.

TABLE VI

Ratio of Actual Deaths to Expected Deaths according to American
Men (Ultimate) Table, by age groups among 5,987 men given periodic
physical examinations by Metropolitan
Life Insurance Company

1914-1920

Attained Age	Per Cent Actual Claims to Probable
Under 30	88
30-39	96
40-49	78
50-59	53
60-69	97
70 and over	121

TABLE VII
ANNUAL MORBIDITY RATES IN DUTCHESS COUNTY,
NEW YORK

(Data from Survey in 1912 made by State Charities Aid Association)

Population	Poughkeepsie 4th Ward		Rhinebeck T.		Milan T.		Clinton T.		Stanford T.		Whole District	
	4,580		3,532		893		1,278		1,520		11,803	
	Sick	Rate Per 100,000	Sick	Rate Per 100,000	Sick	Rate Per 100,000	Sick	Rate Per 100,000	Sick	Rate Per 100,000	Sick	Rate Per 100,000
Total sick.....	355	7,751	533	15,091	77	8,611	62	4,851	67	4,408	1094	9,269
Pulmonary tuberculosis....	10	218	8	226	3	336	2	156	1	66	24	205
Cancer.....	11	240	5	142	..	..	6	468	1	66	23	195
Rheumatism.....	9	197	25	708	6	672	2	156	2	132	44	373
Diabetes.....	4	87	3	85	..	..	..	..	..	..	..	59
Cerebral hemorrhage and apoplexy.....	3	66	3	85	2	224	..	..	2	..	10	85
Dis. of heart and arteries....	13	284	12	340	..	..	2	156	..	132	29	246
Dis. of stomach.....	8	175	12	340	3	336	1	78	4	264	28	237
Nephritis, acute and chronic	6	131	7	198	3	336	..	..	1	66	18	153
TOTAL.....	64	1,398	76	2,124	17	1,904	13	1,014	13	858	183	1,551

Dr. Oscar H. Rogers⁵ of the New York Life Insurance Company, states that individuals with mitral regurgitation without hypertrophy show an excess mortality of 65 per cent above the normal, similar cases with hypertrophy an excess of 105 per cent and cases of mitral regurgitation with history of rheumatism an excess of 200 per cent above the normal.

⁶ From medico-actuarial studies of two million insured lives in this country, persons who have suffered with gout show an excess mortality of 90 per cent within five years; those with rapid pulse (90-100) and no other assignable cause, an excess of 72 per cent; those with rapid pulse of 100 or more an excess of 105 per cent. At the age of 45, persons 50 pounds over weight show an excess of 50 per cent mortality.

⁷Dr. J. W. Fisher reports an excess mortality of nine per cent among insured lives with an average blood pressure of 141; 63 per cent excess mortality among those with a pressure of 152, and 236 per cent excess mortality among those with a pressure of 171.

Such is the situation which must be met and the only means of solution is by the prompt discovery of these conditions at the earliest possible moment. This means periodic physical examinations beginning in childhood.

In making a physical examination to determine the presence or absence of health we must have some standard of health. Fisk gives essentially the following as a standard for physical sufficiency—"It must not be a mean physical state as determined from analyses of existing population but rather a standard derived from a consideration of the physical state to which the human body *can* be brought by reasonable attention to its care and training." Good posture, well-developed but not over-developed musculature, blood constituents within normal range, freedom from head infection, teeth, nasal cavities, tonsils and middle ear normal and free from infection, freedom from intestinal stasis and structurally normal.

What will be found with periodic medical examination can be assumed from studies of the existing figures. The Committee of Ministry of National Service in Great Britain in their report covering an examination of 2,425,184 men of ages 18 to 42, during 1917 and 1918, gave the following: 36 per cent were placed in Grade 1 (physically fit); between 22 and 23 per cent were in Grade 2 and were judged capable of undergoing such physical exercise as does not involve severe strain. Between 31 and 32 per cent were in Grade 3, with marked physical disabilities, and 10 per cent were in Grade 4 and were totally and permanently unfit for any form of military service. At 40 years of age the rejection rate was 69 per cent as compared with 22 per cent at the age of 18. In our own draft about 30 per cent of the men were rejected for one or another cause at the first physical examination by draft boards and many more were rejected upon a second examination at cantonments. For instance, 62,000 men were rejected by draft boards on account of tuberculosis, and 25,000 additional were sent back for tuberculosis upon subsequent

examinations at camp. The rejection rate between the ages of 21 and 31 was 30 per cent higher than the rate at 21 years of age.

The Metropolitan Life Insurance Company some years ago inaugurated a plan for a periodic examination of all employees and now has in its employ 150 men and women, all of whom upon such examination were found to have tuberculosis and all of whom after treatment in sanatoria are again working for the Company.

The Life Extension Institute states that in 1500 routine X-ray examinations of the chest, 17 per cent were found to have enlarged hearts; 4 per cent were found to have active tuberculosis and 5 per cent had changes in blood vessels. Of 4100 consecutive cases with routine X-ray examinations of the teeth, only 76 were found normal; 58 per cent of the individuals examined showed root abscesses and when followed up within six months, 50 per cent of those who had acted upon this information and had had proper attention to their mouths showed definite improvement in general health. Of supposedly healthy people engaged in work, the Life Extension Institute has found 16 per cent with cardiac impairment; 12 per cent with combined heart, blood vessel and kidney changes; 25 per cent with well-marked arterial changes and 26 per cent with blood pressure changes of importance. From 10 to 12 per cent of those examined and whom it was necessary to refer to physicians were previously unaware of their condition.

The Committee on the Elimination of Waste in Industry of the Federated American Engineering Societies, of which Herbert Hoover is President, reported that the economic loss in this country annually from preventable diseases and death is more than three billion dollars. The economic loss from the tuberculosis death rate alone is half a billion dollars; and they figure the loss in this generation from tuberculosis, figured on diminished longevity, will be 26 billion dollars. 500,000 working people die annually. At least half of this loss is prevented or postponed by proper medical supervision and periodic medical examination, health education and community hygiene. At least 25 million people in the working classes have defective teeth and mouth infection. There are more than one million with some form of tuberculosis and more than six million with organic disease resulting mostly from infection.

That periodic medical examination has an effect upon mortality is shown by the results of an experiment that the Metropolitan Life Insurance Company made. From February, 1914, to July, 1921, they offered periodic medical examinations with appropriate advice to policy holders. There were 5987 males who took advantage of this during the first two years and the mortality in this group has been studied carefully for a subsequent five-year period, the findings being compared with the expected mortality according to standard life tables. In the whole group there were actually 217 deaths during this period, whereas according to the American Men (Ultimate) Table there should have been 303 deaths. In other words, the actual mortality was only 72 per cent of the expected. This lessened mortality is shown in all age groups except that of 70 and over.

For more detailed study, the total group was divided into four groups. Group 1—containing 1620 persons or 27 per cent of the total, were preferred risks. There were 34 deaths, this mortality being 47 per cent of the expected, according to the American Men (Ultimate) Table.

Group 2 contained 1269 persons or 21 per cent who were ordinary risks, that is, those excluded from \$5000 whole life policies. There were 44 deaths in this group, a mortality of 72 per cent of the expected.

Group 3 contained 1728 persons or 29 per cent of the total and was made up of those who had no serious organic derangement but had shown albuminuria from a slight trace to a large trace, and were rated as sub-standard risks. In this group there were 38 actual deaths and the mortality was only 46 per cent of the expected; virtually the same mortality as in Group 1 or the preferred risks. It must be noted, however, that the finding of albumin was based on one examination only, and undoubtedly included not only permanent cases of albuminuria but cases of intermittent, temporary or accidental albuminuria.

Group 4 contained 1370 persons or 23 per cent of the total, who would ordinarily be rejected for life insurance. The group included cases of high blood pressure, organic heart, pulmonary and other organic disease. In this group there were 101 deaths or 117 per cent of the expected mortality.

CONCLUSIONS

(1) It is evident that the mortality in the so-called degenerative diseases is steadily increasing.

(2) Health surveys show almost one-third of those sick and disabled are so because of these diseases.

(3) Health surveys show that 28 per cent of those sick and disabled have been in such condition for one year or more.

(4) From 10 to 12 per cent of individuals with physical impairment necessitating medical advice are not aware of their condition.

(5) The economic loss from morbidity and mortality in these diseases is enormous.

(6) By periodic medical examination with appropriate advice and treatment the mortality from the degenerative diseases can be postponed.

BIBLIOGRAPHY

¹U. S. Census Bureau Reports.

²DUBLIN, LOUIS I., "The Incidence of Heart Disease in Adults," *N. Y. Medical Journal*, April 10, 1920.

³N. Y. State Dept. of Health, Record of Division of Vital Statistics.

⁴FRANKEL, LEE K., and DUBLIN, LOUIS I., "Some Recent Morbidity Data."

⁵ROGERS, OSCAR H. and HUNTER, ARTHUR, "Heart Murmurs, and Their Influence on Mortality," *Transactions Actuarial Society of America*, May, 1919, pp. 83-100.

⁶FISK, EUGENE LYMAN, "Preventable Diseases of Adult Life," *N. Y. State Journal of Medicine*, Dec., 1921.

⁷FISHER, J. W., "The Diagnostic Value of the Use of the Sphygmomanometer in Examinations for Life Insurance," *Proceedings of Life Insurance Directors*, Oct. 4, 1911, p. 393-97; *Medical Record*, N. Y., Oct. 21, 1911, pp. 818-20.

COLLEGE AND HOSPITAL NOTES

Edited by CLINTON B. HAWN, M. D.

NEW CHILDREN'S DEPARTMENT AT ELLIS HOSPITAL

On May 12th, 1922, at a combined meeting of the Schenectady County Medical Society and the Ellis Hospital Clinical Society held at the Hospital, the new Children's Department, made possible by the generosity of the people of Schenectady during the recent campaign, was formally presented by the Board of Managers to the medical profession.

The new Department is located in wing D, an additional story having been added to accommodate it. Twenty-eight beds are now available, six in private rooms.

A medical ward for older children, with a capacity of six beds, connects with a large screened open porch which has already proven to be a most valuable asset in the management of nutritional disturbances. A surgical ward of six beds, a baby ward of 7 beds and an isolation room with private bath, with duty rooms, baths, linen closet and diet kitchen complete the equipment.

The wards are most attractive, provided with fireplaces and decorated and furnished with due regard to the psychological effect upon children and parents. Each ward is equipped with running water, as precaution against crossed infections and the lighting at night is indirect from the floor. Individual cupboards, each containing cup, basin, etc., are provided.

The Department is a distinct unit, with its own supervising nurse and staff. There are adequate facilities for teaching.

ALBANY HOSPITAL BOARD OF GOVERNORS

The Governors of the Albany Hospital have reelected Charles Gibson president; Frederick W. Kelley, vice president; Luther H. Tucker, secretary, and A. Page Smith, treasurer, to hold for the coming year.

The executive committee consists of Dr. Albert Vander Veer, Edmund N. Huyck, Robert Olcott, Charles Gibson, Frederick W. Kelley. The law committee consists of A. Page Smith, James McCredie and Thomas Hun. The finance committee is Robert Olcott, Charles Gibson and A. Page Smith.

ALBANY MEDICAL ANNALS

AN OUTLINE OF THE PRINCIPLES OF CALORIMETRY AS APPLIED TO THE CLINIC*

By J. H. MEANS, M.D.

Boston, Mass.

I. INTRODUCTION

I wish to speak tonight of calorimetry as it concerns the clinician. Calorimetry, of course, means the measurement of heat, and as applied to the animal organism it means the measurement of heat produced within, and heat eliminated from, the living body. It deals, in other words, with metabolism, perhaps not metabolism as we sometimes think of it—the transformation which some special substance undergoes within the body, like nitrogen or iron—but rather the metabolism of energy or total metabolism. The Germans have two words for metabolism, “Kraftwechsel” and “Stoffwechsel,” energy exchange and material exchange. It is the former that concerns us now. The physician, attempting as he does to cure or relieve human ills, can not but be interested in phenomena of such fundamental nature as the production and elimination of animal heat. Rowntree has well said, “Where life is, metabolism is,” and while we know little enough of what life is we can

* An expansion of a lecture delivered at the Albany Medical College, January 5th, 1922. The author's original work in calorimetry has been done chiefly at the Massachusetts General Hospital, and has been aided in part by the Proctor Fund of Harvard University and in part by a gift from Dr. William Norton Bullard.

at least observe some of the universal properties of living tissue; and heat production is one of them.

The animal body has often been likened to a fire. As in a fire, fuel is burned, yielding heat. In the case of the warm-blooded animal, however, the analogy is incomplete for in the fire the rate of combustion and the heat production is dependent upon the supply of fuel and oxygen, whereas in the animal organism, although supply of fuel and oxygen is usually ample, factors other than supply, such as internal secretions, tend to control the rate of combustion.

II. HEAT PRODUCTION

The production of heat within the living organism takes place in the tissue cells. Nevertheless, it is possible to measure it quite readily. This is because we know what substances can be oxidized in the body and what their chemical structure is, and therefore how much oxygen will be required to burn them, and how much heat will be evolved in the process. In brief, heat production can be calculated from the respiratory gases, oxygen and carbon dioxide. This process is known as Indirect Calorimetry, in contrast to the direct measurement of the heat eliminated, which we will take up a little later.

Indirect Calorimetry, or the calculation of heat production from the gas exchange, depends upon the fact that the substances burned in the body are carbohydrates, fats and proteins and that the heats of combustion of these substances are known. It is a matter of common information for example that:

1 gram of carbohydrate yields approximately 4 calories,

1 gram of fat yields approximately 9 calories,

1 gram of protein yields approximately 4 calories

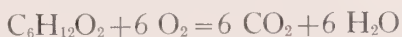
when oxidized either within or without the body. It is also known how much oxygen is required to oxidize a given quantity of any of these substances. So we can turn things around and say how many calories a liter of oxygen is worth when burning any of these three; thus:

1 liter of oxygen = 5.0 cal. when burning carbohydrate,

1 liter of oxygen = 4.7 cal. when burning fat,

1 liter of oxygen = 4.8 cal. when burning protein.

From this it follows that we can calculate heat production from oxygen consumption provided we know what substance or substances are being burned at the time we make our measurement. This latter information we can fortunately also get from the gas exchange. For example the reaction which takes place when carbohydrate is burned is as follows:



It will be seen therefore that in the oxidation of a molecule of carbohydrate, six molecules of oxygen are used up and six molecules of water are formed. It will be seen further that the relation of the amount of oxygen used and of carbon dioxide formed in the oxidation of any food substance depends upon the degree of oxidation of the substance to start with, and that the relation between these two gases gives the clue to what is actually being burned. This relationship has been commonly called the respiratory quotient or R. Q. and is actually the volume of CO_2 divided by that of O_2 . Thus, $\text{R.Q.} = \frac{\text{CO}_2 \text{ (vol.)}}{\text{O}_2 \text{ (vol.)}}$. Now, in the case

of carbohydrates this quotient has a value of one, for in place of molecules in the reaction of oxidation we can substitute volumes, since equal volumes of gases at equal temperature and pressure contain equal numbers of molecules. We have therefore, for carbohydrate:

$$\text{R.Q.} = \frac{6 \text{ vols. CO}_2}{6 \text{ vols. O}_2} = 1.00$$

In the case of fats we have this type of reaction:



The R.Q. is therefore $\frac{102}{145} = .70$

Fats require relatively more oxygen to burn them than carbohydrates for they contain less to start with.

In the case of proteins the problem is more complicated for they are not completely burned in the body to CO_2 and water. There are nitrogen-containing end products which are eliminated in the urine. Strictly speaking, therefore, to determine with absolute exactness what is burned

in the body, not only the R.Q. but the urinary nitrogen should be known. The R.Q. in the case of protein has a value intermediate between that of carbohydrate and fat, being about 0.81. As a matter of fact, for most practical purposes urinary nitrogen can be dispensed with because under the conditions of rest and twelve hours after food the nitrogen metabolism bears a pretty constant relation to the total. The small variations that do exist make no material difference in the final calculation.

From the gas exchange, therefore, knowing the amount of oxygen absorbed per minute and its worth in calories which we learn from the R.Q., we can calculate the total heat production of the organism in terms of calories per minute.

III. INDIRECT CALORIMETRY

Let us consider for a few moments the basic principles of the existing methods for measuring the gas exchange for purposes of indirect calorimetry. Two general plans have been used, giving two basic types of apparatus, the so-called "closed circuit" and the "open circuit" type.

The closed circuit type is dependent upon the principle that if a subject breathes from a closed system containing air he will withdraw oxygen from it and add carbon dioxide and water vapor to it. By arranging the closed system so that the air passes around a circuit it becomes possible to withdraw the carbon dioxide and water vapor by suitable absorbers, the gain in weight of which, as they absorb, gives the subject's carbon dioxide and water vapor output. Such a system also makes possible the measurement of oxygen absorption, for if we absorb the gases given off by the subject the only volume change in the whole system will be a shrinkage which is due solely to his withdrawal of oxygen. This sort of system can be most readily described diagrammatically. (See Fig. 1.)*

In the hands of Benedict and his collaborators the closed circuit respiration apparatus has undergone a steady

* The diagrams of respiration apparatus in this paper are purely to illustrate the more important principles involved. They are neither drawn to scale nor are they complete in all details. Anyone attempting to carry out the technique should consult the references given at the end because many steps in the procedures I have purposely omitted.

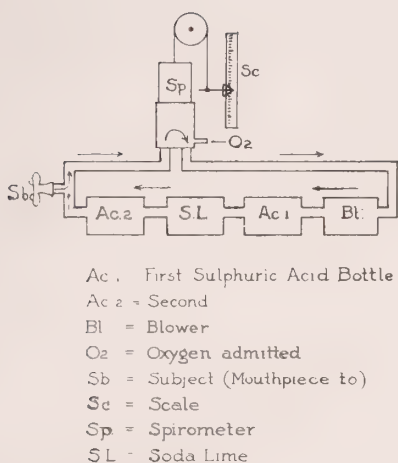


Fig. 1. Schema of a closed circuit respiration apparatus of the Benedict type. Air is circulated in the direction of the arrows by the blower. The subject breathes into the system through nose or mouthpiece. The spirometer records his respiratory movements and also shows a continuous fall in level due to his oxygen absorption. This fall is measured for the calculation of oxygen absorption. The first acid bottle removes the water vapor given off, the soda lime bottle, the carbon dioxide. The second acid bottle collects moisture lost by the soda lime. The gain in weight of the last two gives the carbon dioxide output.

evolution in this country. Starting with apparatus of the type shown in Fig. 1, to which the subject was attached by a mouth or nose piece, the development first went toward a chamber type in which the circuit included a chamber containing the subject. This type is used in several clinics now for the study of infants and children and in laboratories for the study of animals. Later the development, in response to a clinical demand which we shall discuss later, went in the direction of simplification. In the first place, for many purposes Benedict believed that the R.Q. might be assumed. It will be noted that the difference in the calorific value of oxygen

between quotients of 0.75 and 0.85 is only the difference from 4.79 to 4.86 calories per liter. The average R.Q. of a man twelve hours after food is in the neighborhood of 0.80, so that it can be seen that the assumption of that R.Q. would not be likely to introduce an error of any importance. But if that is so, it is possible to simplify both apparatus and technique, for only oxygen need be determined. The first step in the simplification process was the placing of the motor within the spirometer. There it took up less room and leaks were less likely; next the carbon dioxide absorber was also put inside the spirometer, which again reduced the chance for leaks and made the

apparatus still more compact. The last step was the substitution of valves for the motor. This evolution is shown diagrammatically in Fig. 2. The medical profession is greatly indebted to Benedict for this development of a simple yet

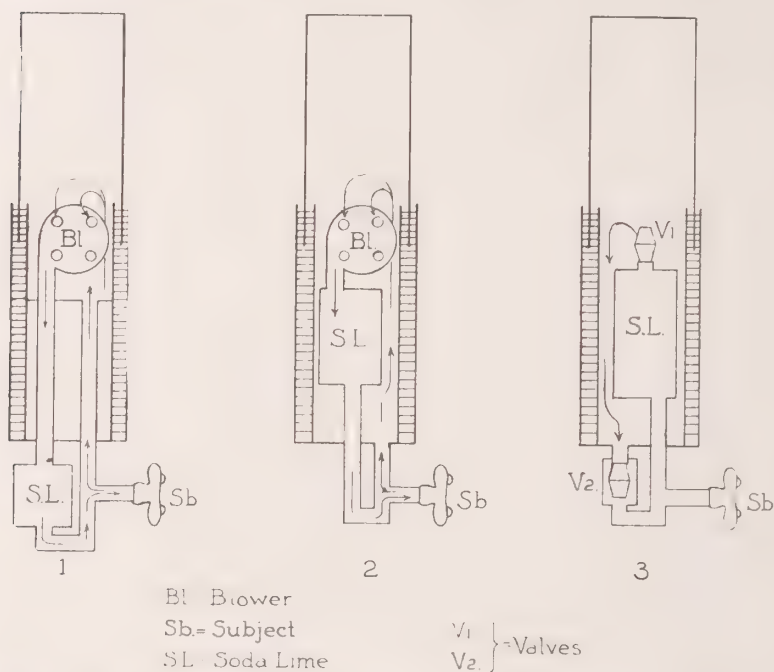


Fig. 2. Diagrammatic representation of the evolution of the portable Benedict apparatus.

1. Shows blower inside, absorbers outside spirometer.
2. Shows both blower and absorbers inside.
3. Shows blower replaced by valves. The subject pushes the air around the circuit himself.

accurate apparatus by which total metabolism can be determined in the clinic.

The open circuit plan depends upon an entirely different principle. Here the subject breathes through two valves as shown in Fig. 3, which separate the inspired from the expired air and allow the collection of the latter in a suitable reservoir. The composition of the inspired air is known (outdoor air which is of very constant composition ordinarily being led in through a pipe) and that of the expired is

determined by gas analysis. Knowing the difference in O_2 and CO_2 content of inspired and expired air and the total volume of the latter in a given time interval, it follows that one can calculate the oxygen absorption and carbon dioxide elimination per minute.

The variations of this type of apparatus in general use are the Tissot Spirometer and the Douglas Bag. The former is merely a large

gasometer directly measuring the volume, the latter a collapsible bag in which the air is collected and its volume measured later by passing it through a gas meter.

Either the closed or open circuit plans are suitable for clinical work, though the former involves far less effort because gas analysis is time-consuming and tedious.

IV. HEAT ELIMINATION. DIRECT CALORIMETRY

If heat is produced within the body it must likewise be eliminated; otherwise the temperature, instead of remaining nearly constant as it does, would steadily increase, soon approaching a level incompatible with life. To maintain a constant temperature, elimination must parallel production.

The several channels for heat loss are well known. In the first place we may radiate heat directly from the surface of the body, or by conduction by imparting heat to objects or material coming in contact with the body. We can also lose heat by the evaporation of water both from the skin and from the lungs. A very small amount of heat is lost through the warming of substances entering the body—air, water or food at temperatures lower than the body, to that of the body.

Heat lost through all these channels may be measured by an instrument called the respiration calorimeter, the

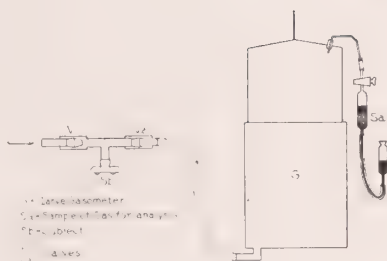
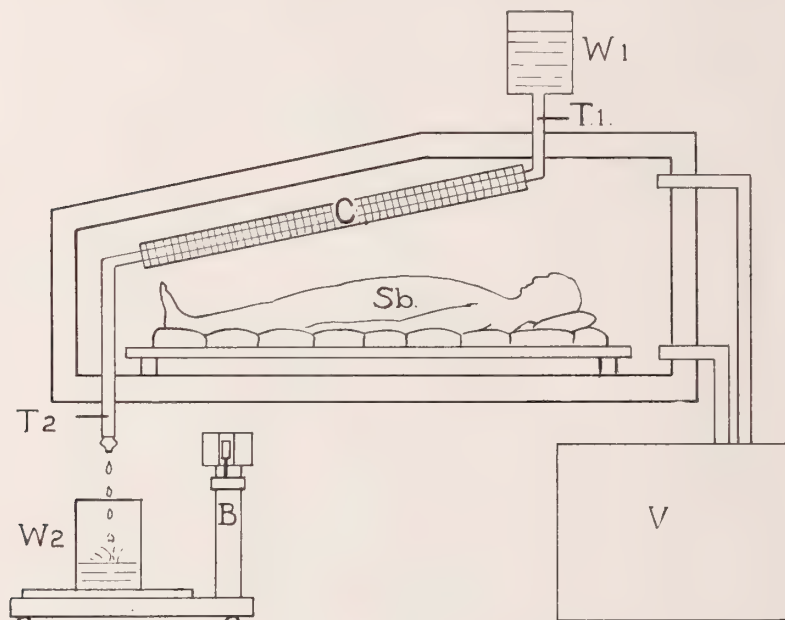


Fig. 3. Schema of an open circuit type of respiration apparatus. Outdoor air enters the subject's lungs via the first valve and his expired air departs through the second. It is lead into the large gasometer, its volume measured and a sample taken for gas analysis.

process, in contradistinction to the calculation of heat production from the gas exchange, being known as direct calorimetry.

The principle of the calorimeter is shown in Fig. 4. To start with, it is a closed circuit respiration apparatus of the chamber type, and as such can be used for indirect calorimetry. In addition however it measures directly the heat given off from the subject. This is accomplished first of all by providing the chamber with walls which do



B Balance

C Heat Collector

Sb. Subject

V Ventilating Unit

T₁ Ingoing Thermometer

T₂ Outgoing

W₁ Water Reservoir

W₂ Water Reservoir

Fig. 4. Schema of the respiration calorimeter. Calories radiated and conducted from the subject within the double-walled, non-heat-conducting box are determined from the amount of water flowing through the collector and its gain in temperature. The amount of water is determined by weighing the outflow and the temperature is taken as it enters and leaves the box. The ventilating unit is identical in principle and operation to the closed circuit respiration apparatus shown in Fig. 1.

not conduct heat and by placing within it a heat collector. The walls are rendered non-conducting through the simple expedient of keeping them always at the same temperature as the air within the chamber. This is done through an electrically controlled device by means of which the walls can be cooled or heated at will, and therefore by constant observation and correction they can be kept from varying materially from the inside chamber temperature. The heat collector is simply a system of metal tubes through which water flows. It is arranged so as to present a very large surface to the surrounding atmosphere, very much in fact like an automobile radiator except that the latter is designed to lose heat rather than collect it. Since the walls of the chamber can not conduct heat, all heat given off by the subject by radiation or conduction is collected in this water system. The amount of water flowing through the system is weighed, and its temperature before entering and after leaving the chamber is taken. Now a calorie is the amount of heat necessary to raise one gram of water one degree centigrade, and hence if we know the number of grams of water running through the collector and the number of degrees that it has increased in temperature we have directly the heat radiated and conducted from the subject. To get the total heat elimination we must add to these radiated and conducted calories those due to the evaporation of moisture from skin and lungs. This is easily done, for all the water vaporized is caught in the first sulphuric acid bottle of the ventilating unit. The gain in weight of this bottle then gives the amount of water vaporized and since the amount of heat necessary to vaporize a given quantity of water at a given temperature is known, the calories due to water vapor can be reckoned and added to the radiation and conduction calories to give the total heat elimination.

With this apparatus a vast fund of important data has been secured by Benedict and his collaborators at the Carnegie Institution Laboratory and by Dubois and his collaborators at the Russell Sage Institute of Pathology at New York. The former group has studied chiefly

problems of normal metabolism, the latter of pathologic. Nevertheless, the apparatus is unsuited to wide clinical use. It is very expensive and elaborate, slow of operation and requiring a personnel of at least three highly trained observers. Fortunately for most clinical purposes the indirect calories are all that are needed, and for that reason it is entirely proper to substitute for the elaborate calorimeter the simple respiration apparatus, at least for the daily use of the clinic. The yeoman's service performed by the former in the establishment of certain basic principles of body economy must not be forgotten.

V. THE NORMAL METABOLISM

Let us now consider the problem of how normal heat production is regulated. The immortal Frenchman Lavoisier, the father of human calorimetry, in the latter part of the eighteenth century discovered the cardinal facts of heat production as we know them today. He knew, for example that food, exposure to cold, and muscular work all increase the absorption of oxygen. It is upon the recognition of these principles that all modern metabolism studies are based.

When a human or other animal is at complete muscular rest in a post-absorptive state—that is twelve or more hours after taking food—and is in an environment with a temperature which seems to him neither chilly nor too hot it is found that his rate of oxygen absorption is remarkably constant. Furthermore, it is the lowest rate of absorption that he is capable of. In warm-blooded animals there is a fairly sharply defined level below which the rate of oxidation within the body can not go. It is independent of oxygen supply and of the environmental conditions and is determined for the organism in all probability through the agency of his endocrine system. This fundamental rate is commonly known today as the Basal Metabolism, a term first used I believe by Lusk and suggested to him by the German term "Grundumsatz."

When we wish to judge of the normality of a pulse rate we try to get it at its lowest. We keep our patients quiet until the count becomes constant from minute to minute.

If we wished to compare the pulse rate of one patient with that of another, or in one disease with that in another, it would be the resting (or in fact the basal) pulse rate that we would use. Similarly therefore, if we wish to compare the rate of heat production of one person with that of another, it is the basal metabolism that we must use. In a patient what we want to know is whether the rate of production of heat is normal for him or abnormal. This we must decide by comparing his metabolism with that of persons known to be normal. And this brings us to the general problem of what constitutes normal basal metabolism.

For any given normal person a very constant rate of basal metabolism is found, but the rates of different persons are different. They vary however in accordance with a known law and not at random, as does perhaps the disposition or the color of the hair. The law in question is the so-called Surface Area Law of Rubner. This investigator found that with warm-blooded animals while the metabolism varied greatly with size, nevertheless it was quite similar as between different species or between

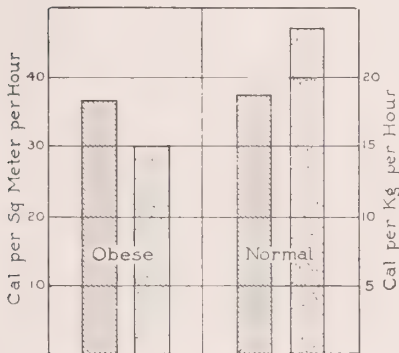


Fig. 5. The metabolism of an obese person and that of one of normal build, in terms of body weight (dotted columns) and of body surface (shaded columns), illustrating the fact that metabolism is more nearly proportional to area than to weight.

different individuals of the same species if expressed in terms of the surface areas of their bodies. We might expect basal metabolism to be proportional to body weight or height, but it is Rubner's contribution to show that it is more nearly related to area. Whether this relationship is causal or coincidental has been a subject of lively discussion among physiologists. We as clinicians need not enter this discussion. It will very likely be settled in due course.

In the meantime I think we can content ourselves with this: that to compare one person's metabolism with another's we must have a standard for comparison, and that it seems well established that the basal metabolism is more nearly proportional to the area than to any other simple bodily factor now known. This principle can perhaps be made clearer by a diagram in which it is shown that the metabolism of an obese person and that of one of normal build are essentially alike in terms of body surface, though quite different in terms of body weight.

The surface area then provides the unit in terms of which we can best express metabolic rate. We speak commonly of heat production in terms of calories per square meter per hour, and we have at our disposal certain standard figures in the same terms with which to compare the metabolism of our patient.

This matter of normal standards needs a word of explanation. There really is probably no such thing as a normal standard rate of metabolism any more than there is of pulse. Nevertheless, in terms of surface area the basal rates of normal persons vary within a narrow limit. For this reason it has become a common practice to compare the metabolism of patients with figures made up from the average rates of a large group of normal persons.

The compilation of such standards was made possible through the development by the Du Boises of a formula by which body area can be determined with accuracy from the height and weight of the subject. The importance of this contribution can not be overestimated. From its first announcement dates practically all the widespread clinical work in calorimetry which is going on in this country today. It was the Du Bois formula really which made calorimetry available for practical clinical work.

The standard figures by the Du Bois Formula are as follows:

Age	CALORIES PER SQUARE METER AND HOUR	
	Males	Females
14-16	46.0	43.0
16-18	43.0	40.0
18-20	41.0	38.0
20-30	39.5	37.0
30-40	39.5	36.5
40-50	38.5	36.0
50-60	37.5	35.0
60-70	36.5	34.0
70-80	35.5	33.0

They are commonly known as the Russell Sage Institute Standards. Further facts will be brought out by a glance at these figures, namely, that although area plays the major part, there are slight differences with age and sex. Women, for example, run about three calories per square meter per hour lower than men, and as one grows older there is also a gradual decline in the metabolic rate somewhere in the neighborhood of a calorie per square meter per hour for each decade.

VI. PHYSIOLOGIC ACCELERATORS OF METABOLISM

The law of the conservation of energy, namely, that energy is indestructible, applies to the human organism just as it does, so far as is known, to the universe in general. This too was probably recognized by the master mind of Lavoisier.

If a certain quantity of potential energy enters the body in the form of food, it must either remain there as potential energy (as for example in the stores of fat and glycogen or the body proteins) or it must leave the body either as potential or some other form of energy. As a matter of fact, but little leaves as potential. The only potential energy leaving the body as such is contained in substances eliminated in the feces or excretions in the form of organic compounds capable of further oxidation.

If we calculate the fuel value of the substances actually being oxidized in the body by indirect calorimetry and measure the actual heat production by direct calorimetry we will find that the two in the case of the resting subject

are essentially the same; that is to say, in the resting subject the entire potential energy of the substances oxidized is ultimately degraded into heat. Of course some of it is first turned into other forms of energy, as for example the mechanical energy displayed by the heart muscle; but this in turn ultimately becomes heat, perhaps through the friction encountered as the blood mass passes through the vessels, and in other ways.

In the active subject this is not so, for some of the energy appears in the form of external mechanical work; but even so, the law of the conservation of energy holds, for if we

compute the heat equivalent of the mechanical work done and add it to the heat directly eliminated and any that may be stored in the body in case of rising temperatures we find it just equal to the calorific value of the oxygen consumed at the subject's actual respiratory quotient.

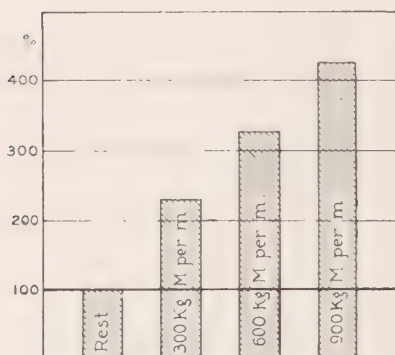


Fig. 6. Metabolism during muscular work.

Note the magnitude of the increments with varying amounts of work. This diagram shows the results obtained with the author as subject, the work being done on a stationary bicycle with ergometer attachment. Resting metabolism taken as 100 per cent.

work, food and external cold. We also now recognize certain endocrine stimulants to metabolism, of which the thyroid and the adrenal secretions seem the most important.

It is quite easy to understand that muscular work increases oxygen consumption. For the purposes of the present résumé all that we need do is to note the order of magnitude of the work increment. This can be shown quite well by the diagrammatic representation of an experiment upon myself (Fig. 6). In this experiment the mechanical work

performed was measured by a stationary bicycle with ergometer attachment. The first column represents my total calories when at rest sitting on the apparatus, the other three when doing varying amounts of work. It will be noted that at 600 kg. meters of work per minute my metabolism is thrice the resting rate, and this amount of work is not great, being roughly the equivalent of my walking upstairs at the rate of three flights per minute. This experiment will illustrate well the necessity of having a

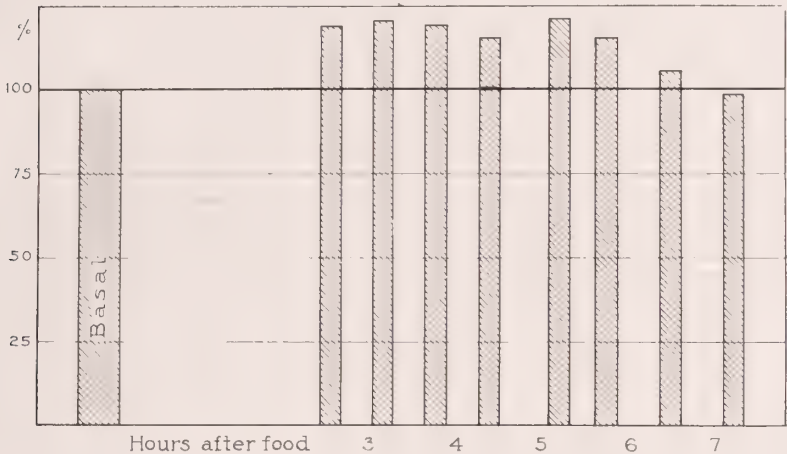


Fig. 7. Metabolism after meat ingestion. The experiment was performed upon Dr. Aub. The amount of meat eaten was 500 grams. Compare the magnitude of the elevation after food with that during work shown in Fig. 6. The fasting (basal) metabolism is taken as 100 per cent.

subject at absolute muscular rest if we ever expect to get an accurate measurement of his basal metabolism. Even very slight muscular movements cause increased oxygen consumption and must be entirely eliminated to get correct basal readings.

In contrast to this the effect of food is slight, but it also must be eliminated in getting true basal values. All food substances, fats, proteins and carbohydrates, upon absorption give rise to an increased rate of heat production. This phenomenon is called the Specific Dynamic action of food substances. It is greatest in the case of proteins.

In Fig. 7 is shown Dr. Aub's metabolism before and after the ingestion of 500 grams of meat. It will be noted that the effect of even this rather large ingestion of meat was to raise the doctor's metabolism by only about one-fifth, or 20 per cent, which is in very marked contrast to the 200 per cent to 300 per cent elevation seen in my own case during muscular work.

The third factor of external cold we can neglect for at ordinary room temperature with a clothed or covered subject it never comes into play. The effect of the endocrine hormones we will discuss a little later under the pathology of the metabolism.

VII. HEAT BALANCE IN HEALTH AND DISEASE

The cells of the warm-blooded animal require for their normal activities an environment of nearly fixed temperature. This is provided for them through the temperature regulating agencies of the body. The rate of heat production we have seen depends, under ordinary circumstances, on factors other than environmental, yet in the face of widely varying outside temperature, body temperature must be kept constant. This can be done of course only through the maintenance of a rate of heat elimination which is equal to the rate of heat production. The temperature regulating agencies of the body must augment heat loss if body temperature tends to rise above 98.6 deg. F. and check it if the temperature tends to fall. This in different environments requires a nice adjustment which is accomplished through the correlation of the various channels of heat loss. For instance, the more outside temperature falls below that of the body the more readily will heat tend to be radiated and conducted from the body. To counteract this loss, sweating is checked and the amount lost through the evaporation of water is diminished. Also the amount radiated and conducted is itself checked through vasoconstriction so that less heat is carried by the blood to the surface of the body where it might lose its heat. The reverse happens when outside temperature rises; sweating is increased and vaso-dilation brings the blood to the surface. These actions are known as the physical regulation

of temperature. They are under the control of the central nervous centers which determine vasomotor, respiratory and sudorific activity.

Under ordinary conditions this physical regulation suffices to maintain normal body temperature. Under extreme conditions it does not. As outside temperature falls a point comes when the loss of heat becomes so great in spite of physical regulation that body temperature would fall were it not for another compensation, the so-called chemical regulation, which is simply an increase in heat production. The act of shivering, which is of course muscular work, is an agency to accomplish this end.

The regulation may also fail as outside temperature rises. When this equals or exceeds that of the body no heat can be lost by radiation or conduction; it must all be lost through the evaporation of water. When the humidity is low, as in Arizona, so that water evaporates readily, outside temperatures as high as 110 deg. or more can be borne without change in body temperature. When the humidity is high, they can not. In either case a point is finally reached where the loss of heat fails to equal the production; then a rise in body temperature becomes inevitable for the body apparently possesses no mechanism for slowing metabolism to meet this emergency as it does of increasing it to meet the reverse condition. Indeed, this rise in body temperature actually increases the rate of heat production as Du Bois has shown, thereby introducing a vicious circle.

The heat balance in various febrile states has been studied in the Sage Institute Calorimeter by Du Bois and his associates. In general they found that there is an increased heat production or basal metabolism in fever which is more or less proportional to the height of the fever. As a general statement they give 13 per cent as the average rise in metabolism for each degree centigrade of fever. This conclusion was based on their results in six different types of fever—typhoid, malaria, pulmonary tuberculosis, arthritis, erysipelas, and the fever following the intravenous

injection of foreign protein (vaccine). They further point out the similarity of this finding to Van't Hoff's law for the speed of chemical reactions, which is that "with a rise in temperature of 10 deg. C., the velocity of chemical reactions increases between two to three times." In other words, the velocity of the complex oxidation reaction of the human body obeys apparently the same general type of law as do simple chemical reactions in the test tube.

This application of Van't Hoff's law does not apply to all stages in the febrile state; it is presumably the expression of the state of affairs when the heat balance is more or less stable though at a pathologic level. In periods of unstable heat balance when body temperature is falling or rising a variety of relationships between metabolism and temperature and between heat production and elimination are found.

The most striking instance is in the malarial cycle. In the preliminary period body temperature and heat production and elimination are all normal. With the rigor comes an enormous increase in heat production, from 100 per cent to 200 per cent, with no corresponding increase in heat elimination. A sharp rise in temperature occurs of necessity. Later on, during the period of fever and recovery, there is a fall in heat production, a rise in heat elimination and hence a fall in temperature. The rise in metabolism during the rigor is very likely, in part, heat due to muscular work. The malaria patient at this time has an increase about like mine when doing 300 to 600 kilogram meters of work per minute on a bicycle.

The disturbances of heat balance are most fascinating and we might go on to a discussion of various other types, but time will not permit. In general, however, an understanding of the morbid physiology will aid in the interpretation of clinical manifestations; chills or rigors will be interpreted as increasing heat production with heat storage, sweats as sudden increases in heat elimination and the ridding of the body of extra heat, as in the night sweats of phthisis. For the purpose of the present discussion

the main point to bear in mind is that changes in heat production may or may not alter body temperature according to whether the heat equilibration is preserved or disturbed.

VIII. METABOLISM IN AFEBRILE DISEASES

Let us now consider briefly such pathologic states as are accompanied by an alteration in rate of metabolism but with no change in temperature regulation, that is to say, those in which changes in heat production are entirely compensated for by alteration in heat loss, and in which body temperature is unchanged, as is the case in the normal subject during the various physiologic alterations in metabolic rate which we have already considered, except perhaps in the more severe grades of muscular work when there may be a slight elevation of temperature due to some lagging of heat elimination behind production.

We have seen that the regulation of the rate of heat production is through intrinsic rather than extrinsic agencies. Playing a most prominent role in this regulation we find the thyroid gland and therefore in diseases of this gland

we find the most striking instances of abnormality of heat production. When the thyroid is overactive, heat production is increased over the normal rate; when underactive, it is decreased. The action of the internal secretion or secretions of the thyroid (of which the thyroxin of Kendall may be the chief) seems to be to determine the rate at which tissue cells will metabolise; it is, in other words, what Lusk calls a calorigenetic action.

In the various forms of toxic goiter the secretion of

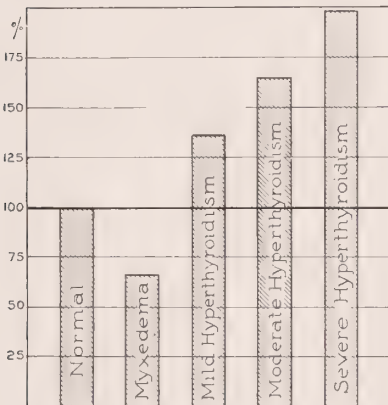


Fig. 8. The basal metabolism of a man while in a normal state, taken as 100 per cent, compared with what it might become if he developed myxedema on the one hand or mild, moderate or severe hyperthyroidism on the other. Compare with the physiologic changes shown in Fig. 6 and 7.

the thyroid is presumably discharged in excess, there is a state of hyperthyroidism, the basal metabolic rate shows a striking increase, and many of the cardinal clinical signs and symptoms of the disease can be interpreted as being the direct result of this increase. For example, the loss of weight, the increased appetite and rapid circulation rate quite naturally follow an increase in combustion, while some other symptoms such as sensations of warmth, flushing, increased sweating are the manifestations of an increased heat elimination. This increased elimination in toxic goiter for the most part equals the increased production and so there is little if any change in body temperature.

The reverse happens in myxedema and cretinism. Heat production is slowed, and to preserve body temperature in so far as possible from falling, elimination is checked; thus we find a cold, pale, dry skin instead of a hot, flushed, moist one as in hyperthyroidism.

The magnitude of the changes that may occur in hyper- and hypothyroidism are shown diagrammatically in Fig. 8.

It will be noted that in severe hyperthyroidism there may be a basal rate as high as that of a normal person while performing a moderate amount of muscular work. When it is borne in mind that this in the thyrotoxic patient is a continuous performance night and day, while the work increment in the normal person is at most only a few hours per day, some idea will be gained of the great strain the thyrotoxic state imposes upon the patient's circulatory, excretory and nervous systems.

Of other glands exercising a calorigenic action, the adrenal is by far the most important. The work of Aub and others has rendered it highly probable that the action of the adrenal and thyroid hormones on the metabolic rate are similar in nature but that the mechanism of the two is independent. Each exerts its characteristic effect without the aid of the other. One striking difference between the two is in the time relation; the effect of thyroid gland or thyroxin, when administered by mouth or otherwise, is to increase metabolic rate, but it takes several days for the full effect to develop and as many more to de-

part. The effect of adrenalin reaches its height in half an hour and passes off nearly as soon.

The effect of the other glands on metabolic rate, so far as is known, is slight, if any, and need not concern us here.

One other group of diseases showing a striking alteration on metabolism, and indeed the only one probably outside of these already mentioned, is that of primary blood diseases.

In both forms of leukemia there is a marked increase in basal metabolism of somewhere near the same order of magnitude as that seen in moderately severe hyperthyroidism, 50 per cent to 60 per cent. Why this occurs is quite unknown, nor is its significance as affecting prognosis understood. In certain cases of primary anemia too there is an elevation of perhaps 20 per cent to 30 per cent, not so great a one as is seen in leukemia nor as constant. All leukemia patients show the rise; only some of the anemias do. What it means when it does occur in the latter disease we do not know. It seems to occur chiefly in those cases showing the most blood destruction.

IX. PRACTICAL APPLICATIONS OF CALORIMETRY

It will be obvious to any thoughtful person that calorimetric studies of disease are bound to yield further valuable information as they have in the past, but this is in the field of research. Now, however, they likewise have their place in the routine diagnosis and management of certain diseases, notably those of the thyroid.

If, as seems most probable, one of the important functions of the thyroid is the regulation of rate of combustion, it follows that if we can measure the latter we shall have what amounts to a functional test of the thyroid. In observing the progress of a case of myxedema or of toxic goiter periodic determinations of the basal metabolism give a quantitative idea of the intensity of the functional disturbance which the clinical picture alone can not do. In the hypothyroid case the metabolism level shows us exactly how much thyroid to give any particular patient, the aim being to give just enough to raise the metabolism to normal and maintain it there, while in hyperthyroidism we can note the effect of our ligations, thyroidectomies or X-ray treatments.

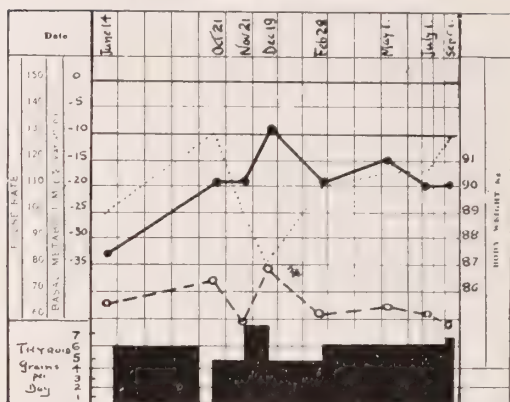


Fig. 9. Chart of a myxedema patient showing basal metabolic rate (black line), pulse rate (interrupted line) and body weight (dotted line). In this and the two following figures the basal metabolic rate is expressed as a per cent variation above or below the Sage Institute standards. The amount of thyroid given daily is shown at the bottom. It will be seen that only when taking as much as $7\frac{1}{2}$ grains a day did this man's metabolism come within the normal range.

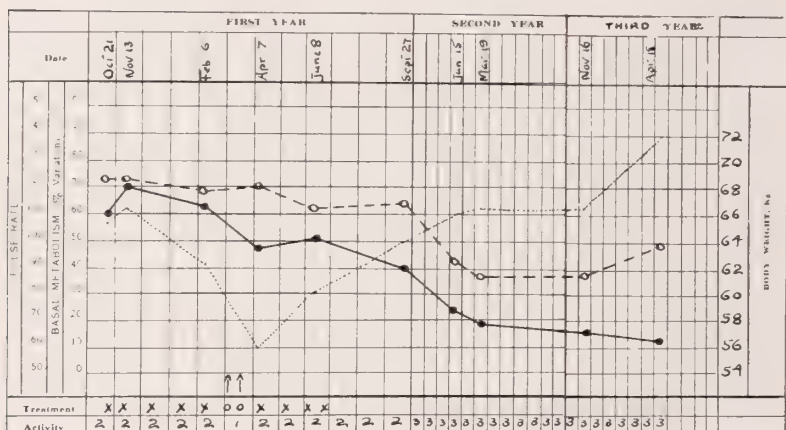


Fig. 10. Chart of an exophthalmic goiter patient, showing basal metabolic rate (black line), pulse rate (interrupted line) and body weight (dotted line). Under "treatment," "X" denotes an X-ray treatment, "O" an operation. The two operations were ligations, first of the superior vessels on one side, then on the other. Under "activity," "1" denotes complete rest in bed, "2" partial rest and "3" usual mode of life. The three curves tell the story of the patient's progress.

The chart of the thyroid patient should, among other things, show the metabolic rate, the other factors of most importance for charting purposes being the body weight and pulse. I will show you two such charts obtained in the thyroid clinic of the Massachusetts General Hospital, one of a myxedema and one of an exophthalmic goiter patient. Their utility in the treatment of disease is similar to the pulse-temperature-respiration chart of the febrile patient. I also will show the chart of a leukemic, in which metabolic rate and white count show a striking parallelism.

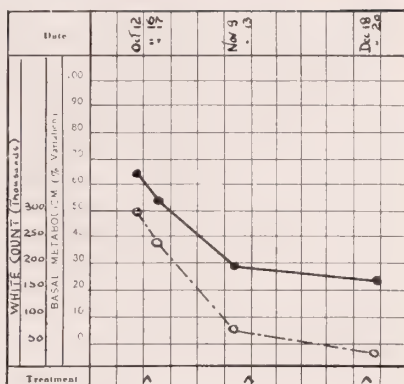


Fig. 11. Chart of a myelogenous leukemia patient, showing basal metabolic rate (black line), and white count (interrupted line). Under "treatment," the arrows denote radium treatments.

For purposes of diagnosis, too, metabolic rate determinations are helpful. We have seen that there are but few afebrile diseases showing elevation of metabolic rate, these being hyperthyroidism, leukemia, sometimes pernicious anemia, and perhaps to a slight degree only, hyperpituitarism. But none of these are likely to be confused clinically; and, in general, provided the last three are excluded, the finding of an elevated metabolism is strong evidence for hyperthyroidism. At least it is if we really observe the true basal rate. The calorigenetic action of adrenalin I have already mentioned. Cannon has shown that emotional disturbances increase the flow of adrenalin. Taking a patient into a laboratory and inviting him to be fastened to a fantastic-looking machine may cause an emotional disturbance capable of raising the metabolic rate although the work, food and temperature factors are all completely controlled. In other words, our first test may not give the basal rate at all, but rather the rate which follows adrenalinemia. We can control this in part

by keeping the apparatus out of sight and by getting the complete confidence of the patient and telling him just what it is all about; but the real control is to make repeated tests on different days. Let us suppose we are asked to make a metabolism determination in order to help distinguish between hyperthyroidism and irritable heart. If a normal rate is found on the first test, well and good; hyperthyroidism does not exist. If, on the other hand, an elevated rate is found, make other tests on other days. The second will perhaps be lower than the first; there is less emotion because the patient knows just what the procedure is to be like. Finally the readings strike a true basal level which may or may not be above normal.

Abnormally low rates, 20 per cent or more below the normal standard, generally signify hypothyroidism. Starvation and shock are about the only causes outside of thyroid deficiency that lower the rate of bodily oxidation. Furthermore, there are not, so far as is known, physiologic retarders of metabolic rate as there are accelerators.

It will be seen then that the routine use of calorimetry in the clinic is at the present time practically limited to thyroid diseases, their diagnosis and the estimation of the effects of treatment. It is possible that soon the significance of the elevated rate in leukemia will become known and that it will prove helpful in treating that group of diseases. The same may perhaps eventually be true of pernicious anemia. One thing I must mention, though I can not do more, and that is the use of calorimetry in diabetes. Here it does have a practical use but one which can hardly be practiced on a large scale because of the complexity of the technique. In diabetes certain slight changes occur in basal metabolism, but it is not so much that which one wishes to know as it is the relative and actual amounts of fat, carbohydrate and protein being burned. As I pointed out earlier, all this information can be obtained from the gas exchange and urinary nitrogen.

In closing I should like to leave the impression first that human calorimetry is a method of study which has in the past thrown a bright light on the basic principles of

metabolism and heat balance, and that it will undoubtedly continue to do so, and that its application for research may apply to every pathologic state. Secondly I should like you to realize that routine clinical calorimetry has a definite though narrow field and that you can not avoid either overestimating or underestimating the degree of usefulness unless you familiarize yourself with the physiological and pathological factors involved, nor can you avoid technical errors or errors of interpretation unless you have a clear understanding of the principles underlying the procedure. The briefest outline of those principles is what I have tried to give in this lecture, and I am adding a short list of readings selected from the extensive literature of the respiratory metabolism of man. If you care to go seriously into this field I would suggest that you start your study with these.*

*If an extensive bibliography is desired, see Volume V of Barker's "Endocrinology and Metabolism."

SELECTED READINGS

Introductory:

1. Lusk: A history of metabolism. Barker's Endocrinology and Metabolism, vol. III, p. 3. N. Y., 1922.

Normal Metabolism:

2. Lusk: Science of nutrition. 3rd ed. Philadelphia, 1921. Chaps. I-IV. (inc.)
3. Lusk: Specific dynamic action of various food factors. Medicine, I, No. 2. (in press).
4. Bainbridge, F. A.: The physiology of muscular exercise. London, 1919. Chaps. I-IV (inc.).
5. Aub, J. C.: Relation of the internal secretions to metabolism. Jour. A. M. A. lxxix, 95, 1922.

Technique:

6. Benedict and his associates in the following series of papers: Boston Med. & Surg. Jour., clxxiv, 857, 898, 936; clxxviii, 667; clxxxi, 285, 334, 368; clxxxii, 243; clxxxiii, 449; clxxxiv, 220; clxxxvi, 457, 491.

7. Boothby and Sandiford: Basal metabolic rate determinations. Philadelphia, 1920.

Heat Balance:

8. Du Bois, E. F.: Metabolism in fever and certain infections. Barker's Endocrinology and Metabolism. N. Y., 1922. Vol. iv, p. 95.
9. Balcar, J. O., Sansam, W. D., and Woodyatt, R. T.: Fever and the water reserve of the body. Arch. Int. Med., xxiv, 116, 1919.
10. Ott, I.: Fever, its thermotaxis and metabolism. N. Y., 1914.

Pathological Basal Metabolism:

11. Sturgis, C. C.: A clinical study of myxedema with observations of the basal metabolism. Med. Clin. N. A., March, 1922.
12. Lahey, F. H. and Jordan, S. M.: Basal metabolism as an index of treatment in diseases of the thyroid. Boston Med. & Surg. Jour., clxxxiv, 348, 1921.
13. Means, J. H. and Holmes, G. W.: Further observations on the X-ray treatment of toxic goiter. Arch. Int. Med. (in press).
14. Murphy, J. B., Means, J. H., and Aub, J. C.: Effect of Roentgen ray and radium therapy on the metabolism of a patient with lymphatic leukemia. Arch. Int. Med., xix, 890, 1917.

REPORT OF YEAR'S SURGICAL WORK

1921

By E. MACD. STANTON, M. D., F. A. C. S.,
andC. W. WOODALL, M. D.
Schenectady, N. Y.

The following report of surgical work performed by Dr. Stanton and myself at the Ellis Hospital during the year 1921, has been prepared similar to reports of previous years. Experience has shown that by studying these cases in groups a better perspective may be obtained of the relation between surgical management and prognosis than if they are studied individually. A study of each year's work with a critical analysis and frank acknowledgment of any errors in judgment, technique or management is of inestimable value in the avoidance of such mistakes in the future. It is of equal value in pointing out good results obtained and in drawing our attention to the relative merits of the various technical methods which we have employed.

During the year 1921, there were 493 patients on our service at the Ellis Hospital. Of this number 454 were operated upon with a total of 491 operations. The difference in patients operated and the total number of operations is due to a number of patients having more than one operation. In this latter group are included such cases as two stage prostatectomies, skin grafts, transfusions, etc.

Twenty patients died of the 454 treated or a mortality rate of 4.38 per cent. Of the 20 deaths 15 occurred in operated cases or a mortality in operated cases of 3.05 per cent.

TECHNIQUE AND GENERAL CONSIDERATION

Skin Preparation

For the ninth consecutive year we have used the alcohol (60 per cent)—acetone (38 per cent)—Pyxol (2 per cent) solution introduced by Dr. Ellice McDonald for sterilizing our hands and the skin of the operative field. We believe that our experience has proven this solution to be almost

ideal for the purposes for which it is intended. During the past year there were no infections in primarily clean cases.

Anaesthesia

All of our general anaesthetics have been given by Dr. R. D. Reid. While from time to time during past years we have branched off into the use of nitrous-oxide and various other forms of anaesthesia we have always returned to ether by the open drop method as the most safe and satisfactory standard anaesthetic. If we were ourselves to be operated we would unhesitatingly select this simple ether anaesthesia. In the field of local anaesthesia novocaine is of course, satisfactory. All of our anaesthetics during the past year were either general anaesthetics with ether or local anaesthetics with novocaine.

X-ray and Special Examinations

The X-ray, the cystoscope, the proctoscope and other special means of examination were used in every case in which it seemed possible to throw any additional light on existing conditions by the use of such diagnostic data. Notwithstanding the very great value of such examinations we still feel that the carefully taken history, the general physical examination and clear thinking on the part of the diagnostician are the three main requisites for a correct diagnosis. Taken in conjunction with the three requisites above mentioned the data obtained by the special examinations may be and very often is of great value, but without the three requisites these specially obtained data are very likely to be dangerous and misleading.

Fractures

The 26 fracture cases enumerated in this report as treated in the hospital represent but a small proportion of the fractures seen by us during the year. The high cost of hospital care together with the portable X-ray and simplified methods of treatment have made it advisable to treat many fracture cases at home which were formerly treated in the hospital. During the past 10 years we have not seen a single primary fracture which in our opinion has required bone-plating and in no cases treated by us have subsequent

results indicated that we should have used plates. During recent years we have very seldom had to resort to a general anaesthetic in order to reduce a fracture.

In the treatment of fractures our chief rule has been to keep the patient as comfortable as possible and to handle the injured part so carefully that involuntary muscular contractions are avoided. When one realizes that a 150-pound man raising himself so as to stand on the ball of one foot exerts through his tendo-Achilles a pull of close to 500 pounds, it is easy to comprehend the enormous displacing effect of muscular contractions. A spiral fracture of the leg no matter how carefully reduced under anaesthesia will not stay in place if a few powerful contractures take place while the patient is coming out from the anaesthetic. We believe that these displacing contractures can very largely be avoided. *First*, by thoroughly explaining their nature and effects to the patient and constantly reminding him of the necessity of perfect relaxation. We often speak of this as talking the patient into relaxation. *Second*, by avoiding all sudden painful manipulations. *Third*, by absolutely adhering to comfortable retention apparatus.

In fractures of the leg below the knee we maintain extension and reduction and often actually obtain reduction by first applying a well padded cast from above the knee to the toes. After drying this cast is cut completely around at the level of the fracture, after this a simple screw extension apparatus is used to obtain extension and correction of the deformity. This apparatus can be made by any one possessing a small vice, a hack saw, a $\frac{1}{4}$ inch drill and a $\frac{1}{4}$ inch tap. The apparatus consists of 6 pieces of $\frac{3}{4}$ inch strap iron about 10 inches long with a $\frac{1}{4}$ inch hold about $\frac{3}{8}$ inches from one end. The piece of strap iron is bent at right angles about $\frac{3}{4}$ inches from the end with the hole in it. These pieces are then bent to fit the cut cast and applied in pairs, one pair on either side and one pair in front and fastened to the cast by a plaster bandage. By placing a $\frac{1}{4}$ inch bolt through each pair of holes and adjusting the nuts any degree of extension can be gradually and painlessly obtained and by extending one unit more than

the other almost any degree of deformity correction can also be easily and painlessly obtained. In compound fractures this simple apparatus enables us to get slow correction in such a way as not to break down defensive repair processes and in doing so open up avenues for infection. Previous to the introduction of this gradual and painless method of reduction we were several times guilty of lighting up infections in compound fractures which had run an apparently aseptic course until we stirred up the latent infection by too active attempts at reduction.

DEATHS

The five deaths occurring in non-operated cases were deemed hopeless from the time of admission. One case of perforated gastric ulcer was in extremis and expired within an hour of the time of admission. One case of multiple burns covering a large portion of the body died the following day. One, an extensive cellulitis of the face and neck, died of toxemia four days after admission. One gunshot wound of head expired shortly after admission, and one case of carcinoma of the prostate in a terminal condition died of renal insufficiency four days after admission.

Of the 15 deaths occurring in operated cases an analysis shows that eight of these can be classed as hopeless risks from the time of admission. One case of fractured skull with sub-dural hemorrhage in an old lady died five days after a decompression operation. One case of perforated typhoid ulcer with advanced general peritonitis died on day of admission. One case of gunshot wound of the abdomen with a severed gastric artery died from hemorrhage and shock. One case of a ruptured appendicial abscess with advanced general peritonitis and a belly full of pus died the day following operation. One case of carcinoma of the cecum which was hopelessly advanced died from an embolus six days after an exploratory operation. One case of empyema in a patient almost moribund upon admission died from toxemia. One old man with a senile gangrene of the foot died three days after an amputation from cerebral hemorrhage. One case of intestinal obstruction came to

operation so late that he was unable to withstand the shock and toxemia, expiring upon the day of operation. A case of mesenteric thrombosis with gangrene of a portion of the small intestine appeared to be almost hopeless on admission. She improved however, for a time following a resection of 10 c.m. of jejunum and finally died of pulmonary complications.

Of the six remaining cases one woman operated for gall stones with perforation of the cystic duct died eight days after operation. Autopsy showed the operative field in good condition and at the same time failed to reveal any really satisfactory explanation of her death. One woman, aged 27, on whom a Caesarian section was performed died 3 days later due to nephritis and myocarditis. This patient was a very poor risk to start with and I know of no way in which her death could have been avoided. One young man, age 19, died of an embolus the day after an appendicial abscess was drained. One woman, age 47, operated on for a fibroid and chronic salpingitis died from a pulmonary embolus 10 days after operation. These last two cases represent surgical accidents which I see no way to have avoided. One man, age 34, who was referred on the 4th day of an attack of acute appendicitis had a ruptured appendix with general peritonitis. He expired on the 11th day after making a heroic fight to overcome the infection to which he finally succumbed. One case is that of a woman of 50 who had a hysterectomy and who was also operated for a fissure-in-ano. Following the operation this patient developed a perirectal infection which extended into the perineum and finally into the peritoneum followed by death on the 17th day after operation. This last represents the only death which we believe might have been avoided. The infection in this case followed an enema which was given without an order from a doctor and was possibly responsible for carrying the infection into tissues in the region of the rectal operative field.

In this series of 491 operations there were no deaths traceable to errors of operating technique. Likewise no deaths can be traced to faulty judgment at the time of

operation. Aside from the two cases dying from pulmonary embolus the only death related to a surgical accident occurred in the patient with the virulent infection beginning in the rectum following incising the sphincter for fissure. As this infection developed several days after the operation we do not feel that it was in any way the result of a faulty operative technique.

Acute Appendicitis

There were 52 cases of acute appendicitis operated by us during 1921 with 3 deaths or a mortality rate of 5.8 per cent. Twenty-one of these, or over 40 per cent, came to operation at such a late date that the pathology present made drainage a necessity. Last year 60 per cent of our acute appendicitis cases presented lesions requiring drainage. This high proportion of drainage cases namely 50 per cent for 1920 and 1921, caused us to check up our entire experience for the past 14 years with some rather startling and interesting results.

Few facts in medicine or surgery are more firmly established than that deaths in acute appendicitis could be almost entirely avoided if all patients were referred for operation within 24 or 36 hours of the onset of the attack. The great, great majority of deaths occur in patients operated 48 hours or later after the onset of symptoms. The statistics for large groups of cases show that the mortality rate for cases operated after the first or second day of the acute attack is always approximately 10 times as great as for cases operated during the first 2 days of the attack. These facts have been common medical knowledge for the past 20 years. There may be some doubts as to the best way to reduce the incidence of tuberculosis, and the Shick test-toxin-antitoxin method of preventing diphtheria may be open to some questions but there is not now nor has there for many years been a question as to how best to reduce the mortality from appendicitis. Early operation is and probably always will be the solution of this problem.

Previous to 1918, 69 per cent of the cases of acute appendicitis operated by us were referred within 48 hours of the onset of the disease and were operated with a mortality of

approximately 5 per cent confined almost wholly to the 31 per cent of late cases. During this period the mortality in these late cases remained approximately constant at about 15 per cent. Since 1918 only 43 per cent of the cases of acute appendicitis operated by us have been referred to us within 48 hours of the onset of the attack, with the result that during the past three years our mortality rate has been approximately 10 per cent but with the same relative mortality in the early and late cases showing that the increased mortality has been due entirely to the large proportion of late cases. In seeking to ascertain why so large a proportion of appendix cases have recently been coming to operation during the late or dangerous stage of the disease the following causes are deemed worthy of careful consideration.

First. During the past seven or eight years almost no papers on acute appendicitis have appeared in the medical journals. The lack of frequent articles on the subject urging early operation may have had a tendency to relax the vigilance of the profession as regards this subject. A study of our histories seems to show that this factor has been directly active to a far less extent than might at first thought be expected.

Second. The increased cost of hospital care. We believe that this has been a decidedly important factor in deterring patients from seeking early operation. Hospital costs in the capital district of New York State may be taken as fairly typical of present conditions. In many cities such as Troy, Albany or Schenectady, only a relatively unimportant proportion of acute surgical illnesses are treated in the charity wards. The vast majority of acute appendix cases occur in patients not accustomed to seek charity. The problem of furnishing hospital accommodations at a cost within the means of the patients to pay without undue hardship is therefore of the utmost importance. We feel that the great practical importance of the ever mounting cost of hospital care has scarcely been recognized either by the profession or the public. The margin between the ability on the part of the sick to pay for such hospital

services and their inability to pay for the same is always a narrow one. Eight years ago the average patient in a hospital in this community paid an average of approximately \$1.65 per day for all services rendered by the hospital. Income from endowment, municipal appropriations and contributions made up for a deficit of approximately fifty cents per patient day. Since 1913 the average cost to the patient for the services rendered by the hospitals has more than doubled, an increase which is not only out of proportion to the general increase in the cost of living but which is also entirely out of proportion to any increased ability on the part of the patients to pay. This more than doubling of the cost to the patients for the services rendered by the hospitals does not by any means tell the whole story because during this period almost all hospitals have reduced very materially the service per patient rendered by pupil nurses. This reduction in pupil nursing has necessitated the employment of special nurses in a greatly increased proportion of cases. In 1913 special nurses cost patients from \$17.50 to \$30.00 per week. Today this service costs \$84.00 per week, an increase amounting to from 180 per cent to 380 per cent. Any physician can readily realize what a factor this must be in deterring patients from seeking early surgical intervention.

Chronic Appendicitis

Eight appendices were removed under the pre-operative diagnosis of chronic appendicitis. Each one of these cases presented a definite symptom complex outside of simple pain in the right lower quadrant which justified a diagnosis of chronic appendicitis. In each case the appendix showed definite pathology to bear out the pre-operative diagnosis. Per contra, 11 appendices taken out incidentally during the course of laparotomies for other conditions than appendicitis, showed microscopically chronic appendicitis, yet in none of these 11 cases were there any symptoms leading to the diagnosis of chronic appendicitis. This discrepancy between symptomatic chronic appendicitis and microscopical chronic appendicitis has been pointed out by us

on other occasions. We fully believe that the only microscopical chronic appendix which gives symptoms is the one in which there is a more or less continuous or recurring obstruction to the lumen, be it from adhesions, concretion or contraction of fibrous tissue.

Twenty-six patients had appendices removed incidentally during the course of laparotomies performed for causes other than appendicitis.

Tonsillectomies

There were 70 tonsillectomies, 69 of which were performed under ether and one under local novocaine anaesthesia. The only untoward event complicating these tonsillectomies was a moderate post-operative hemorrhage in one case which was promptly controlled by pressure. All of these cases were handled with the old, simple technique which has stood the test of years. The patient is in the prone position. Dissection of the tonsil is made with some blunt instrument usually a finger, and a snare used to sever it at the base. We do not use complicated suction apparatus to remove the blood, as we have found it far simpler to hold a gauze covered finger to the first tonsil fossa for a few minutes if there is sufficient bleeding to embarrass removal of the second tonsil. The average time consumed with this technique is, I believe, considerably less than that used in a technique employing complicated apparatus.

Hernias

Forty herniotomies were performed and are classified in the following table:

Right Inguinal	16
Left Inguinal	11
Double Inguinal	5
Right Femoral	1
Left Femoral	1
Umbilical	1
Ventral	4
Epigastric	1

47

Of these, 2 inguinal, 1 femoral and the umbilical were strangulated. All of these patients recovered without complications of convalescence.

During the past year we have supplemented our usual closure of inguinal hernias which is of the Ferguson-Andrews type without the transplanting of the cord, by using in the male the cremaster muscle as an additional layer. This is sewed to the under surface of the internal oblique muscle as a first layer with the usual stitching of the internal oblique to Poupart's ligament and imbrication of fascia following.

I believe this use of the cremaster as suggested by Halsted and others to be a real advance in technique and especially valuable in those cases with a wide open ring and poorly developed tissues to work with.

Stomach and Duodenum

Exclusive of cancer there were 9 cases operated for stomach and duodenal conditions as follows:

Duodenal ulcer—Posterior gastroenterostomy.....	4
Pyloric ulcer—Posterior gastroenterostomy.....	1
Pyloric ulcer—Perforated—closed.....	1
Duodenal ulcer—Perforated—closed.....	1
Duodenal ulcer—Perforated—Transfusion.....	1
Gunshot wound of stomach—Perforation closed.....	1

In no class of operative cases have we had greater success as regards post-operative complications and freedom from discomfort than in gastroenterostomies. During the past 9 years we have not had a single hospital death following a simple gastroenterostomy. In only a minimum of cases has there been any post-operative vomiting or real discomfort. I believe that these satisfactory results both immediate and late are largely due to the technique of performing the operation without the use of the time honored rubber tube covered stomach clamps. The anastomosis is made without the aid of any such appliance so that bleeding vessels of the stomach and intestine can be clamped and tied directly. This obviates the danger of hemorrhage into the stomach and at the same time enables us to get apposition of the stomach and jejunum in the best relative positions.

Gall Bladder

Fifteen cases were operated for gall bladder disease. Of these 10 had stones in the bladder, 1 in the common duct, and 4 a simple cholecystitis without stones. Of the 10

cases of stones in the bladder 9 had a simple drainage with removal of the stones. One had a cholecystectomy. In the common duct case the stone was removed with drainage of the common duct and gall bladder. In two of the cases of cholecystitis the gall bladder was drained, in the other two it was removed.

In addition to the above there was 1 case of gall stones incidental to acute appendicitis, another to carcinoma of the stomach, and one more to a mesenteric thrombosis following gunshot wound. In none of these were the gall stones interfered with.

One case of acute hemorrhagic pancreatitis had a drainage of the gall bladder.

Uterus, Tubes and Ovaries

There were 17 supra-vaginal hysterectomies performed for the following conditions:

Fibroids	13
Polypoid Endometritis	1
Carcinoma	1
Pregnancy complicated by fibroids and myo-carditis and nephritis	1
(Pro-operation)	
Menstrual neurosis	1

In addition to the 17 supra-vaginal hysterectomies there were 2 vaginal hysterectomies, one for prolapse and 1 for chronic endometritis.

There were 17 curettages for the following conditions:

Polypoid endometritis	4
Incomplete abortion	3
Sub-mucous fibroid	1
Uterine polyp	3
Retained secundines	2
Pernicious vomiting of pregnancy	2
Sterility	1
Metrorrhagia	1

There were 35 operations performed for tubal and ovarian conditions as follows:

Acute salpingitis—Double Salpingectomy	4
Chronic salpingitis—Double Salpingectomy	17
Ovarian cyst—removed	7
Ectopic pregnancy	4
Tube-ovarian abscess—Double Salpingectomy	3

Cervix and Vagina

Fourteen operations were done for corrections of cervical and vaginal conditions as follows:

Dilation of cervix for atresia.....	I
<i>Amputation of cervix</i>	
For erosion.....	I
For lacerations.....	3
For cervicitis.....	I
<i>Cautery of cervix</i>	
For carcinoma.....	I
For erosion.....	I
Vaginal cyst excised.....	I
Cystocele, anterior colporrhaphy.....	I
Perineal repair.....	4

Rectal Cases

Twenty-five patients were operated on for rectal conditions as follows:

Hemorrhoids alone.....	13
Hemorrhoids with fistula-in-ano.....	I
Hemorrhoids with fissure-in-ano.....	2
Fistula-in-ano alone.....	4
Rectal polyp.....	I
Ischio-rectal abscess.....	I
Fissure-in-ano alone.....	3

25

The hemorrhoids were all treated by the clamp and cautery method, as was the rectal polyp. In the fistula cases an opening was made through the sphincter from the fistulous tract. No complications occurred in these cases.

Kidney Cases

Nine cases of kidney disease were treated as follows:

Pyonephrosis—Medical treatment.....	I
Hydronephrosis with stones, nephrectomy.....	I
Hydronephrosis without stones, nephrectomy.....	I
Hydronephrosis without stones—Medical treatment.....	I
Tubercular kidney and ureter, nephrectomy.....	I
Renal calculus, nephrotomy.....	I
Pyelitis—cystoscoped only.....	3

Diseases of Male Generative Organs

Twenty-one cases were treated for disease of the male genital organs as follows:

Hydrocele, sac inverted or excised.....	3
Hydrocele of cord.....	I
Phimosis, circumcision.....	8
Acute seminal vesiculitis—Medical treatment.....	I
Tbc. epididymitis—Resected.....	I
Peri-urethral abscess—Drained.....	I
Stricture of urethra—Dilated.....	I
Caruncle of urethra—Cauterized.....	I
Enlarged prostate—Removed.....	3
Acute prostatitis—Medical treatment.....	I

All of our prostatectomies were handled by the 2 stage method and by the supra-pubic route. By allowing a sufficient length of time after the preliminary supra-pubic cystotomy for the patient to regain a satisfactory renal function and to establish an immunity to the local infection we have found that this class of exceptionally poor risks have done surprisingly well. One symptom has occurred with such constant regularity that I believe it worthy of note. At about the end of the first week following the prostatectomy most of these old men develop a period of depression, often verging on a melancholia which may last for several days. Just why this should develop with such regularity in cases of prostatectomy and not in other conditions is a matter for some thought.

Goitre

Five goitres were operated as follows:

Exophthalmic.....	3
Adenoma.....	1
Cystic.....	1

These all had uneventful convalescence.

Carcinoma

Twenty-seven cases of carcinoma were treated during the year as follows:

Epitheliomata

Nose—removed.....	1
Forehead—removed.....	1
Lip—removed.....	2

Carcinomata

Breast—Radical operation.....	4
Breast—Recurrent in axilla, gland dissection.....	2
Stomach—Exploratory—Inoperable.....	3
Stomach—Annular carcinoma of pylorus, resected.....	1
Sub-maxillary gland, metastatic, excised.....	1
Cervix—Cauterized.....	3
Cecum—Exploratory laparotomy—Inoperable.....	1
Prostate—Not operated.....	1
Uterus—Pan-hysterectomy.....	1
Liver—Primary bile duct carcinoma—Inoperable.....	1
Neck, metastatic growth from epithelioma, block dissection.....	1
Kidney—Hypernephroma—Inoperable.....	1
Splenic Flexure—Removed.....	1
General carcinomatosis.....	2

Sarcomata

Spindle cell of abdominal wall.....	1
Epulis, removed.....	1
Neck—Inoperable.....	1

Benign Tumors

<i>Cysts—Other than Ovarian</i>		<i>Papillomata</i>	
Cervix.....	1	Penis.....	1
Breast.....	4	Bladder....	1
Coccygeal.....	2	Buttocks...	1
Neck.....	1	Cheek.....	1
Lip.....	1	<i>Angiomata</i>	
Wrist.....	1	Lip.....	1
Vagina.....	1	Forehead...	1
Cheek.....	1	<i>Lipomata</i>	
Knee.....	1	Cheek.....	1
		Neck.....	1

Laparotomies not otherwise listed were performed for the following conditions:

Mesenteric thrombosis—10 c.m. jejunum resected.....	1
Perforated typhoid ulcer—Perforation closed.....	1
Retroverted uterus—Suspension.....	1
Peritoneal adhesions.....	2
Exploratory—No noteworthy pathology.....	2

Intestinal Obstruction

Post-operative.....	1
Congenital band.....	1
Fecal fistula—Post Appendicinal.....	2
Pelvic abscess—Drained.....	3
Ruptured bladder—Closed—Peritoneum drained.....	1

*Bone and Joint Conditions**Non-tuberculous*

Necrosis of phalanx, finger—Amputated.....	1
Bone abscess, os calcis—Drained.....	1
Bone abscess, Tibia—Drained.....	1
Bone abscess, Femur—Drained.....	1
Chronic osteomyelitis Femur—Drained.....	1
Acute osteomyelitis Femur—Drained.....	1
Reamputation old stump of femur.....	1
Arthritis knee—Cast applied.....	1

Tuberculosis

Tubercular knee—resection of joint.....	1
(Same case—Amputation above knee 4 months later).....	1
Knee—Cast applied.....	1
Hip—Cast applied.....	5
Spine—Cast applied.....	5
Spine—Psoas abscess opened and drained.....	1

Fractures

During the year we treated 28 fracture cases in the hospital as follows:

Tibia and Fibula—Compound.....	3
Tibia—Compound.....	1
Tibia and Fibula—Simple.....	2
Tibia—Simple.....	2
Femur.....	8
Radius and Ulnar—Compound.....	1
Colles.....	4

Humerus—Radius and Ulnar, compound.....	2
Humerus—Surgical neck.....	1
Ribs.....	1
Fingers.....	1
Toes.....	1
Skull.....	1

Superficial Abscesses—Infections

Abscess of parotid—Drained.....	1
Abscess of palm—Drained.....	1
Abscess of antrum—Drained.....	1
Alveolar abscess—Drained.....	1
Axillary abscess—Drained.....	2
Abscess, leg—Drained.....	2
Acute inguinal adenitis—Drained.....	1
Ulcer of leg, non-operative.....	1
Cellulitis of face, non-operative.....	1

Plastic Surgery

Contracted scar of hand from burn.....	1
Web-fingers.....	1
Manipulation of finger for post-infection, contraction.....	1
Hammer toe, amputated.....	1
Congenital deformity ear.....	1
Skin graft for neck burn.....	2
Skin graft for leg burn.....	4

Accident Surgery other than Fractures

General lacerations—Sutured.....	10
Severed tendo-Achilles—Sutured.....	1
Contusions.....	15
Foreign body in hand, removed.....	1
Gunshot wound, head—Not operated.....	1
Crushing injury foot, toes amputated.....	1
Physical exhaustion.....	1
Severe burns.....	1

Miscellaneous

Empyema—Resection and drainage.....	6
Lung abscess—Not operated.....	1
Varicose veins leg, removed.....	1
Senile gangrene left leg, amputation thigh.....	1
Phlebitis dorsalis pedis.....	1
Tbc. lymph adenitis—Cervical—Dissection.....	4
Aneurism—Thigh, explored, inoperable.....	1
Scrotal hemorrhage, castration.....	1
<i>Syphilis</i>	
Tabes.....	1
Cerebral.....	1
Gumma of finger.....	1
Gumma of jaw.....	1
General.....	1
Sciatica—Nerve stretched.....	1
Acute enteritis—Not operated.....	1
Chronic constipation, fecal impaction, not operated.....	1

MEDICINE

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INDUSTRIAL MEDICINE

ACTINIC RAY

THERAPY OF ECZEMA

ARTICLE IV

By CALVIN B. WITTER, M. D.

Radium and Oncologic Institute,
Los Angeles, Calif.

So called eczema is found in 30 per cent of all skin affections, is therefore very common and there are too many varieties to permit of detailed discussions, so will limit my paper to regional eczemas and describe the treatment and some of our results from the use of the actinic ray.

The lesions are first irritations, which may be internal or external in origin, therefore the treatment will include systemic or general and focal or ultra-violet irradiation. Since eczema may or may not be of bacterial origin, the deep therapy lamp may be of great value in producing a hyperemia.

It is generally believed that endocrines are in some way related to eczema; therefore remarkable results incident to the use of thyroid and pituitary preparations are established procedure in the clinics. Therefore, proper choice of organotherapy combined with ultra-violet irradiations leads to remedies unparalleled in the long history of eczema therapy.

We can therefore divide the newer therapy of eczema into fourfold:

- (1) Usual restriction of diet and hygiene.
- (2) Organotherapy.
- (3) Deep therapy lamp.
- (4) Actinic rays.

By the intelligent use of these agencies the most gratifying results will be obtained, where heretofore one has met with failure.

The clinical features of eczema may be divided into erythematous, papular and vesicular.

The erythematous is the primary stage of the disease. It is typically present in acute erythematous eczema of the face and hands, though it may occur anywhere on the body, and is sometimes universal. The red patches are smooth, raised and edematous. It may recede or go on to the papular stage. In this form it shows itching papules, varying in size from a pinhead to a split pea. They may be discrete or run together

into patches. The papules may shrivel and be replaced by small scales, but as a rule they are accompanied with such intolerable itching as to occasion, by rubbing, their transformation into flat, shiny lesions suggesting lichen planus. Vesicular stage: in this, the underlying edema is greatly marked and grows so rapidly as to flood the epidermis and cause the formation of superficial vesicles.

ECZEMAS

Treatment: Maximum amount of rest—adequate dressings and bandaging. Itching is relieved by the general treatment with ultra-violet ray. Apply a stimulating erythema over the front and back of the individual using the air cooled lamp at a distance of 15 inches, the exposure time being determined by the dermographic reaction of the individual and the intensity of the lamp. In my experience with the Burdick Lamp it is safe to start with a 3-minute exposure. There should be a general examination including the gastro intestinal tract, liver, kidneys and nervous system. Eczema may co-exist with other diseases, the simultaneous effective treatment of which benefits the eczema. Suitable laxatives and cathartics should be administered to relieve the skin of congestion and prevent the absorption of food toxins into the blood. Free use of soap and water is harmful and should be avoided in most cases. In chronic cases however, soft soap and hot water may be used. Where the lesions are covered with discharges and septic crusts, these should first be removed by bathing with a mild antiseptic lotion, like a 1 in 10 dilution of hydrogen peroxide.

Eczema of the Face

Treatment: General treatment as described. Focal, regenerative erythemas are applied with the air cooled lamp, protecting the eyes with a suitable shield. Following this the deep therapy lamp is given for 20 minutes, the distance to be regulated by the patient's tolerance. Organotherapy is indicated in the chronically inclined conditions.

Eczema of the Lips

It may be associated with lesions on the face or independently. In acute cases the lips are swollen. In chronic cases they are dry, inflamed and scaly. When confined to the upper lip, it is generally secondary to a discharge from the nose.

Treatment: General as above. Discharge from the nose is treated by use of a flat nasal quartz applicator, using the water-cooled lamp. In the acute stages a regenerative erythema is applied with the air-cooled lamp, followed by 20 minutes of deep therapy light saturation. In the chronic stages a destructive erythematous dose is given, again followed by the deep therapy light for 20 minutes. Organotherapy is not indicated. The treatment of the nasal condition is the important factor.

Eczema of the Nose and Nostrils

Usually accompanies the various phases of eczema involving the face. The edges of the nostrils and adjacent mucosa become affected.

Treatment: General management as above. Destructive erythema dose over the lesions applied with the water-cooled lamp, using quartz applicators of such size as to cover the areas conveniently. When there is a nasal catarrh, the water-cooled lamp is used with the flat quartz nasal applicator in destructive erythematous doses, which acts as an astringent and germicide, relieving any septic condition and any discharge.

Eczema of the Mustache and Beard

General management: The hair is removed by clipping and the crusts by applying boro-starch poultices or 1-10 hydrogen peroxide. Regenerative erythematous doses with the air-cooled lamp at 15-inch distance. These are followed by Deep Therapy light saturation for 30 minutes. Organotherapy is not indicated.

Eczema of the Eyebrows

General management as above, destructive erythematous doses with the water-cooled lamp over the affected region, using a quartz applicator of adaptable size. The crusts must first be removed by the diluted hydrogen peroxide solution—deep therapy light saturation for 15 minutes—thyroid gland $\frac{1}{4}$ gram doses daily.

Eczema of the Auricles

Usually arises from septic discharges from the ears or infection.

Treatment: General management. Superficial crusts removed. Canal filled with distilled water, patient's head in lateral position. One drop of diluted gentian violet is added to the water in the ear. The air-cooled lamp is plunged into the dyed water for a distance of $\frac{1}{8}$ inch. This diffuses the rays to all surfaces of the canal. The treatment should continue for 15 minutes.

Eczema of the Scalp

May be of the seborrheic variety.

Treatment: All crusts removed as above. Shaving of the head is desirable. General management. Successive regenerative erythemas over the entire scalp, using the air-cooled lamp. Deep Therapy light saturation for 30 minutes—pituitary gland in 1-10 gr. doses in the seborrheic varieties, thyroid gland in $\frac{1}{4}$ gr. doses daily in the chronic scalp eczema.

Eczema of the Nape of the Neck

This is a frequent site for chronic lichenified patches in adults. The itching is generally intolerable and leads to incessant rubbing and consequently continued irritation.

Treatment: General management. A destructive actinic erythema over the lesion, using the air-cooled lamp—follow with 20 minutes of Deep Therapy light saturation. If not successful use water-cooled lamp with a quartz applicator of a size to cover the lesion, and induce blistering by exposing 5 to 15 minutes. Do not allow the use of a linen collar or any imitation.

Eczema of the Trunk

The Papulo-vesicular type, going on to the formation of weeping, crusty or scaly types is the most common.

Treatment: General management as above. Absolute rest in bed if possible—light food and proper nursing are extremely essential. The crust should be removed with poultices and the bleeding surfaces painted with 1 per cent methylene blue solution. Regenerative actinic erythema exposures are given with the air-cooled lamp over the lesions, and followed by thirty minutes of Deep Therapy light saturation. Treatments must be repeated at frequent intervals— $\frac{1}{4}$ gr. doses of thyroid daily. When about, patient should select cotton or linen underclothing.

Eczema of the Umbilicus

Generally a part of an extensive attack and may be secondary to impetigo or seborrhoeic dermatitis.

Treatment: Local focal application of the ray with air-cooled lamp, producing a regenerative erythema, often repeated.

Eczema of the Arms

Acute—arms swollen and inflamed, sometimes moist. Chronic types generally assume the form of circumscribed, scaly, infiltrated bodies, generally involving the exterior surfaces.

Treatment: Scales and crusts removed, weeping points painted with 1 per cent methylene blue. Regenerative erythemas are induced with the air-cooled lamp followed by 30 minutes of Deep Therapy light saturation. The treatment is the same for the chronic forms, except that the actinic radiation may go on to the destructive stage, and the use of thyroid gland $\frac{1}{4}$ gr. daily.

Eczema of the Hands

All different phases may be met with and sometimes very hard to heal. Many cases result from industrial irritants.

Treatment: Scales removed, weeping foci painted with 1 per cent methylene blue solution. Regenerative actinic erythemas are then applied with the air-cooled lamp. Deep Therapy light used to saturation for 30 minutes. Thyroid gland $\frac{1}{4}$ gr. daily. General management is very important.

Eczema of the Legs

Same as the arms. In general give a stimulative erythematous treatment for that phase, regenerative erythemas for the papular phase, and destructive erythemas for the chronic stages. The ultra-violet treatment should be followed by Deep Therapy light saturation from 10 to 30 minutes exposures. Organotherapy in the form of thyroid gland. Paint weeping surfaces with 1 per cent solution of methylene blue. General management is very important. Removal of all irritants.

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ALBANY
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PROCEEDINGS

OF THE

ASSOCIATION OF THE ALUMNI OF THE ALBANY MEDICAL
COLLEGE—FORTY-NINTH ANNUAL MEETING

The forty-ninth annual meeting of the Association of the Alumni of the Albany Medical College was held in the amphitheater on Monday, June 12, 1922. The usual informal reception was held in the college library, after the Commencement Exercises in Schenectady, and the meeting was called to order by the President, Walter H. Conley ('91) of New York City, at three o'clock.

During the session of the afternoon and the reception and dinner of the evening the following named guests and members of the Association were registered:

Trustees: Edmund N. Huyck, Frederick W. Kelley, Robert Olcott, Amasa J. Parker, Charles A. Richmond, Willis R. Whitney.

Guests: Mrs. Charles A. Richmond, Rear Admiral William S. Sims, Mrs. William S. Sims, Dr. Huntington Williams.

Faculty; Honorary Alumni: W. M. Baldwin, M.D., John M. Berry, M.D., Melvin Dresbach, M.D., A. W. Elting, M.D., Otto A. Faust, M.D., L. Whittington Gorham, M.D., Arthur Knudson, Ph. D., Wm. E. Lawson, M.D., Thomas Ordway, M.D., John A. Sampson, M.D., Charles K. Winne, M.D.

Alumni: D. C. Case ('70); G. L. Ullman ('71); Daniel H. Cook ('73); J. N. Bradley ('75); W. B. Madison, S. E. Ullman ('80); C. M. Culver, C. C. Duryee, W. B. Webster ('81); R. J. Brown, H. C. Finch, W. J. Peddie, Wm. B. Sabin, J. B. Washburne ('82); W. Davis, C. B. McCabe ('83); Robert Babcock ('84); Martin MacHarg ('85); J. H. Bissell, J. A. Heatley, A. W. Johnson, Andrew Macfarlane, C. H. Moore, H. F. C. Muller, H. Z. Pratt, J. S. B. Pratt, J. E. Sadlier, Charles Van Wert, T. H. Willard, H. C. Young ('87); F. M. Barney ('88); J. M. Mosher ('89); W. H. Conley, Wm. J. Fleming, N. D. Garnsey, H. W. Johnson, R. B. Lamb ('91); LeRoy Becker, A. C. Hagedorn, R. A. Heenan, C. B. Mosher ('92); T. W. Jenkins, H. E. de Freest, T. A. Ryan, R. H. Tedford ('93); W. H. George, C. T. La Moure, J. R. MacElroy, J. T. Park, Arthur Sautter ('94); W. J. Wansboro ('95); F. B. Maynard ('96); W. C. Griswold, J. A. Stevenson ('97); C. A. Shultes, F. B. Weaver ('98); J. H. Flynn, E. E. Hinman, William Kirk, G. W. Ross, G. S. Towne, H. J. White ('99); A. J. Bedell, J. H. Dingman, John M. Griffin ('01); La Salle Archambault, K. S. Clark; H. M. Cox, S. S. Ham, E. H. Jackson, E. A. Mason, F. C. Reed, F. M. Sulzman, C. W. Sumner, G. V. Warner ('02); J. N. Vander Veer ('03); B. K. De Voe, W. G. Keens ('04); C. A. Hemstreet, T. A. Hull ('05); V. R. Ehle, C. B. Hawn ('06); L. H. Gaus, Z. V. D. Orton ('07); Wm. H. Conger, J. J. A. Lyons, P. V. Winslow ('08); F. W. McSorley ('09); J. H. Bowers, A. B. Daley, J. L. Edwards, Wm. E. Low, Jr., D. C.

Mauro, A. H. Stein ('12); H. S. Howard, E. H. Ormsby ('13); F. C. Furlong, W. P. Howard, E. H. Huntington, H. V. Judge, W. S. Newell, H. D. Parkhurst ('14); S. H. Curtis, A. M. Dickinson, L. J. Early, W. L. Grogan, J. E. Heslin, J. S. Lyons ('15); M. O. Barrett, J. D. Carroll, R. P. Doody, O. J. Park, Harry K. Tebbutt, Jr. ('16); S. E. Alderson, D. F. Hannon, Irving Van Woert, E. W. Wilkins ('17); E. B. Campbell ('18); Alexander Pietraszewski ('19); Joseph Cornell, Anton S. Schneider ('20); J. P. Lasko, L. A. Hulbert, L. A. Sutton, C. E. Wiedenman ('21); R. A. Bendove, H. R. Browne, H. W. Dargeon, A. R. Davignon, A. L. Filippone, J. J. McEvilly, W. M. Mallia, C. F. Rourke, H. D. Sehl, G. O. Tremble, B. L. Vosburgh, J. C. Younie ('22).

On motion of Dr. Hull, seconded by Dr. Washburne, the reading of the minutes of the last annual meeting was dispensed with and the minutes were approved as printed in the *ALBANY MEDICAL ANNALS*.

Dr. Lamb moved that the President appoint a committee of five to nominate officers for the ensuing year. The motion was seconded by Dr. Sumner, carried, and President Conley appointed as such committee, Dr. R. B. Lamb ('91), Dr. C. W. Sumner ('02), Dr. C. T. La Moure ('94), Dr. E. H. Huntington ('14) and Dr. H. S. Howard ('13). The nominating committee then retired.

A verbal report in behalf of the Executive Committee was presented, showing that four meetings had been held during the year for discussion of arrangements for and program of the annual meeting of the Association.

The recording secretary then presented the following:

REPORT OF THE EXECUTIVE COMMITTEE

Two meetings of the Executive Committee have been held during the year. At the first meeting, Dr. Sautter reported for the Entertainment Committee that the expenses of the Alumni Dinner had been met and that an appropriation of Fifty Dollars had been made for the Nurses' Sick Fund in appreciation of their services at the dinner. An appropriation of Two Hundred Dollars was made toward meeting the expenses for publication of the *ALBANY MEDICAL ANNALS*.

At the second meeting held March 15, 1922, the resignation of Dr. Bedell as Historian was presented and the vacancy thus caused was filled by the election of Dr. William Kirk of the Class of 1899. Committees were appointed to arrange for the program of Alumni Day.

Respectfully submitted,

J. M. MOSHER,
Recording Secretary.

On motion of Dr. S. Edward Ullman, seconded by Dr. T. A. Hull, the report was accepted as read and ordered filed.

The Treasurer, Dr. Robert Babcock, presented his report for the year, as follows:

TREASURER'S REPORT

CR.

Balance on hand June 1, 1921.....	\$247.02
Dues received during the year 1921.....	211.00
Total.....	\$458.02

DR.

Various bills paid for which vouchers are presented.....	386.31
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Balance on hand June 12, 1922.....	\$71.71
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(Signed) ROBERT BABCOCK,
Treasurer.

On motion of Dr. Furlong, seconded by Dr. Jenkins, the report of the treasurer was referred to an auditing committee, who later reported that the treasurer's books and vouchers had been examined and found to be correct. The report was accepted and the committee discharged.

President Conley then delivered an extemporaneous address, stating the condition and needs of the College, directing attention to the changes wrought by years and educational progress, and calling upon the Alumni for continued support of the excellent work of the institution.

Dean Ordway then gave the following résumé of the year's work of the College:

DEAN ORDWAY'S ADDRESS

Members of the Alumni Association of the Albany Medical College:

As representative of the faculty and teaching staff I welcome you on this anniversary and present for your consideration a brief summary of certain activities of the medical college during the past year.

LOCATION OF GRADUATES

As in the past the aim of this school is to train reliable general practitioners and records of our graduates for the past ten years show that forty per cent of them locate in towns and villages of less than ten thousand population. This is very important when we consider the scarcity of good doctors in the small towns and realize that the young doctors above referred to were among the best students in their respective classes. During the past year a former student settled at Westport and another at Newcomb, whereas a graduate of a few years standing has been located at Blue Mountain Lake. Other recent graduates have settled in small towns near the cities of this district.

STATE BOARDS

It is a pleasure to announce again that for the fifth consecutive year there has not been a single failure in the state board examinations among those graduating during these years. This year for the first time the National Board of Medical Examiners has modified its examinations which have already been accepted by twenty-two states so that these examinations are subdivided between preliminary, final, and clinical sets. It would seem advisable to encourage our students to take these examinations in addition to or in lieu of New York State boards. Thus,

in the future we should have an opportunity to compare our students not only on the basis of the New York State board examinations but with these tests of the National Board which are taken by students from the best medical colleges throughout the country.

STUDENTS IN THE HOSPITALS

The shortage of internes was particularly manifest during the world war and the influenza epidemic. This shortage has been occasioned not only by the decreased number of medical students but also by the greatly increased number of hospitals. It has been necessary for many hospitals to pay salaries for interne service for the situation is radically different from that of even less than ten years ago. Many hospitals have utilized the services of technicians and nurses for assistants with the records and for special technical procedures. In the vicinity of various medical schools the custom has been growing to give medical students board and room and even additional compensation to help in various ways throughout the hospital in the evenings, Saturday afternoons, and Sundays or whenever they are not actually attending classes in the medical school. Indeed this practice has developed to such an extent that not only fourth year students but third, second, and in certain instances even first year students have been thus employed in hospitals. The effect of this has been increasingly shown in the poor work many of these men have done in their classes in the medical school for they have little time for reflection or reading. They have frequently developed a so-called practical point of view to the neglect of the scientific training and critical attitude which the medical school should provide.

ADMISSION REQUIREMENTS

Students for admission to the Albany Medical College and to the premedical course at Union College are required to have a personal interview with the committee on admission. This should lead to a more careful selection of medical students. It has been felt that this is very necessary, particularly at this time when there are more applicants than the medical school can at present accommodate. The basis of this selection should be not only on the satisfactory completion of the studies required by law, that is, certain specified number of hours of instruction in chemistry, physics, biology, English and a foreign language but subjects which will give the prospective doctor a broader outlook upon life, such as literature, philosophy, psychology, ethics, social science and history, and above all attempts should be made to select students whose qualities may be designated as fine character. An increased number of students in the Albany Medical College are taking the so-called combined course with Union College. After the satisfactory completion of three years at Union College and the first year at the Albany Medical College they receive the degree of B. S. or A. B. This year for the first time an assistant in chemistry having the bachelor's degree from Union College is taking advanced work for the degree of M. S. under the professor of chemistry at the medical college and the department of chemistry and physics at Union College. The scarcity throughout the country of satisfactory teachers in the so-called preclinical subjects, anatomy, histology, physi-

ology and chemistry makes such an arrangement of great importance and it is to be hoped that as soon as possible students in other branches may in a similar way secure the master's degree and if possible after the satisfactory completion of collateral subjects and the presentation of a thesis of original work a degree of Doctor of Philosophy or Doctor of Science may be given by the university or college. This has been the custom for years in many colleges associated with medical schools.

LIBRARY

The medical library of the State Education Department has, as in the past, co-operated most fully with the work of the Albany Medical College and Albany Hospital. A courier system has been arranged between the hospital and the library to supplement the small library started at the Albany Hospital. At the hospital this working library has been made possible largely through the gifts of a friend of the hospital and medical college. The collection includes the more important medical journals, current text books, indices and reviews. Students and internes thus learn to apply the results of their reading directly to the clinical work.

ALBANY MEDICAL ANNALS

During the past year the ALBANY MEDICAL ANNALS has been reorganized and greatly improved. This has meant a great deal of expense to the medical college. It is believed, however, that this effort has been appreciated and it is hoped that all members of this association will not only subscribe to the ANNALS but help to secure advertisements and gifts of funds necessary for its continuance.

INSTRUCTION

The general plan of instruction has varied but little from that of the preceding six years. It is felt, however, that certain changes could be gradually instituted to bring about the better correlation of the work of the laboratory or so-called preclinical years with the clinical work. This may be best accomplished at first perhaps by the employment of one or two full time younger clinicians who have had laboratory training of one or more years. Next year Dr. H. E. Marden who has spent two years as assistant and instructor in the laboratory of pathology and bacteriology will assist in medicine. It is hoped that a similar arrangement can be made in the near future in the department of surgery. Such a plan would ultimately provide capable assistants for the clinical teachers whose time for teaching is occasionally unavoidably interrupted. Such assistants could take the class in the absence of the part time and volunteer clinical teachers or assist them in arranging for suitable demonstrations, technical procedures and clinical cases. A general re-arrangement of studies in the medical curriculum is now being actively discussed by the Council on Education of the American Medical Association and the Association of American Medical Colleges.

COURSE IN MILITARY SCIENCE

In addition to the usual teaching departments during the past year, at the suggestion of the War Department, a division of military science has been established. All expenses have been paid by the War Depart-

ment who assigned to this school Major James F. Johnston. Dr. Johnston has co-operated in every way with the faculty of the college and in reply to a request has submitted the following statement:

"The course in military science was begun on October 30, 1921. Lectures were given once a week to the sophomore and freshmen classes. The attendance has been good and it is believed that the men are interested in the work. Ten men have applied to attend the summer camp at Carlisle, Pa. It is hoped that during next year time can be allotted so that a certain amount of outdoor work can be given the men. The use of the State Armory can be obtained for this work. One article has been written for the *ANNALS*, Vol. 43, No. 2, describing in detail the objects of this course, and at the present time there is one in the process of preparation. Equipment and models of trenches, latrines and sanitary appliances used in the Army are to be requisitioned this summer and if space is available a military room will be established."

The faculty and board of trustees have sent to the Surgeon General resolutions expressing appreciation for the splendid co-operation of Major Johnston and requesting that he be re-assigned to this school rather than elsewhere next year for it would be unfortunate to have a change in personnel when such an excellent beginning has been made by him.

DEPARTMENT OF ANATOMY

Next year increased funds will be available for this department which will provide additional assistants and more apparatus and equipment. Professor Baldwin wishes to offer the facilities of the department more freely to practicing surgeons and will be glad to co-operate for special anatomical study and investigation when arrangements can be made for additional anatomical material.

DEPARTMENT OF PHYSIOLOGY

In physiology also increased funds will allow additional assistants. As in the case of the part time clinical teachers such assistants will be of great help not only to the full time head of the department but to the part time teacher of pharmacology.

DEPARTMENT OF PATHOLOGY

The department of pathology under the guidance of Dr. Jacobson, professor of pathology, established a clinical pathological conference at the hospital. This department has also contributed numerous articles to the *ALBANY MEDICAL ANNALS* as well as other medical periodicals. Dr. Jacobson has given experimental proof which tends to substantiate from this viewpoint the work of Dr. Sampson in respect to the clinical and pathological disease entity which Dr. Sampson has described, that is, the origin and development of certain growths formerly known as adenomyomata originating from the tubes and ovaries.

Dr. P. L. De Noyelles, a graduate of the Albany Medical College in 1920, interne at the Albany Hospital in 1920-1921 and assistant to Dr. Jacobson in pathology during the past year, died on May 23 from acute exacerbation of chronic nephritis. Dr. Jacobson in his report states that "Dr. De Noyelles was one of the ablest and most conscientious men I

have had the pleasure of working with. His going is a very great loss to the medical college, to the hospital and to innumerable friends who loved him for his kindness of heart and generous disposition. In his short professional life he accomplished much good because he never ceased in his efforts to do for others. In the influenza epidemic of 1918, he contributed his ability and energy. Since then attacks of upper respiratory infections and mastoid disease sapped his vitality and his body suffered but he continued to work because he was happiest in so doing. 'Larry' died in the harness as he wished. His good works have left an enduring influence in the department of pathology, in the hospital and in this community generally." He completed shortly before his last illness a paper on "Intestinal Lymphosarcoma" which will be published shortly in the *Annals of Surgery*. This contribution is a clinical and pathological study of certain types of lymphoid tumors of the intestine. Dr. De Noyelles made the creditable observation that in the cases studied the transitional type of large mononuclear cell or clasmatoocyte (Sabin) was the cell from which the tumors probably arose.

Dr. Sampson has made substantial financial contribution to this department for the purchase of apparatus and towards the salary of assistants.

CLINICAL DEPARTMENTS

Dr. Hawn states that the course in physical diagnosis during the past year has been much improved owing to the additional co-operation which has been given this year by Drs. Brooks, Lawson, and Waite. In ophthalmology Dr. Bedell has written numerous articles on diseases of the eye and been particularly interested in a new method of investigating the structure and function of the eye.

During the past year the special obstetrical department of the Guild for Public Health Nursing has been very satisfactory. This is due in large part to the faithful attendance of Dr. T. O. Gamble at the prenatal clinic at the South End Dispensary. Patients coming to the dispensary have been delivered in their homes under the direction of Dr. Gamble when the labor has been normal. In the case of the first pregnancy or complications patients have been advised to go to the hospital. Such practical dispensary work serves to supplement the work at the Brady Hospital.

The past session has been the first of the three years for which pledges for subscriptions made available the contribution of the General Education Board. This has allowed the establishment of a budget system which should be a great help to the heads of the departments in the school in arranging and developing their work.

The Historian, Dr. William Kirk, presented an informal report, and called upon the following named class historians for reports upon their respective classes:

HISTORY OF THE CLASS OF 1881

The Class of 1881 went from these doors fifty-eight strong. After forty-one years, thirteen replied to a communication, eight were untraceable, thirty-seven had, as the Scotch beautifully express it, "gone away,"

and as we read the latter list of familiar names, we realized that the cheery smile and wave of the hand, which they gave as we parted that day in spring, was for us the good-bye salute "ere they wandered away to that unknown land, and left us dreaming how wondrous fair it needs must be; since they linger there." It is fitting that we record the names of those with whom we wrought in our student days, that we may pay honor and tribute to their memory; and as we reflect on their lives and achievements, receive inspiration to larger and better service. We miss them—we shall miss them. Our words must be necessarily brief; but we recall their service to the stranger and the poor, with little regard for human reward, their counsel to the wayward, encouragement to the discouraged and their willing sacrifice of luxury and even comfort, that humanity might be served.

DAVID FLEISCHMAN died in Albany in 1892.

DANIEL E. HIGGINS died in Whitehall in 1893.

FRANK POTTER JOHNSON, valedictorian of the class, died in Schenectady in 1882.

HENRY N. JOHNSON died in Coeymans in 1897.

EDWARD C. KENNEDY died in Brooklyn in 1889.

F. D. MORRILL died in Albany in 1897.

M. E. NELLIS died in Port Jackson in 1882.

JEREMIAH O'CONNOR died in Troy; date unknown.

FRANK G. SEAMAN died in Seneca Falls in 1898.

E. P. VAN EPPS died in Schenectady in 1899.

LANSING T. VEDDER died in Schenectady in 1900.

WILLIAM L. ALLEN died in Greenbush in 1918.

C. A. CHALONER died in Stephentown in 1918.

F. L. CLASSEN died in Albany in 1919.

HENRY L. FURBECK died in Little Falls in 1907.

WILLIAM E. FORTUNE died in Nicholville in 1904.

JOHN A. HAMMOND died in Schuylerville in 1905.

E. S. LAWRENCE died in Ballston Spa in 1908.

S. HALL MORRIS, "the old man of the class," died in Rochester in 1909.

T. W. NELLIS died in Albany in 1902.

E. E. RULISON died in Amsterdam in 1917.

FAYETTE E. SCHLEY died in New York City in 1908.

N. A. CALDWELL died in Hagaman's Mills in 1907.

WARREN C. COOPER died in Troy in 1911.

CHARLES CRAWFORD died; date unknown.

GEORGE H. VAN WAGNER died in Wappingers Falls in 1907.

THOMAS HAYS died in DeLand, Fla., in 1918.

GEORGE A. BLAKE died in Herring, N. Y.; date unknown.

HENRY R. VAN RENSSELAER died in Lanesboro, Mass.; date unknown.

FRANK BEEBE died in Eau Clair, Mich., in 1919.

NELSON EVEREST died in Garoga, May 29, 1921, his wife following him in June of the same year.

GEORGE A. KRUG died in Utica, January 8, 1918.

JOHN W. MORRIS died in Troy, October 5, 1914.

W. J. MURPHY died in San Bernardino, Cal., in 1914 or 1915.

IRA HARRIS, after a wonderful career as a medical missionary, died in Tripoli, Syria, November, 1915.

LAWRENCE KENNEY died in Troy in 1921.

EDWARD L. CRANDALL died in Troy in 1916.

LAUREN F. ROSE, F. B. FOOTE, WM. T. MILLER, ELVIN D. BRADLEY and L. J. ARCHAMBEAULT were untraceable, although of the latter, we learned after practicing a few years in Troy he removed to New York City.

WM. P. MASON and JAS. H. MITCHELL failed to reply to our inquiries. The former, we learn, however, was at the time of his graduation teaching in the R. P. I., in Troy, and still holds his position there. Jim Mitchell is in Cohoes where municipal and other honors galore have been showered upon him. Having turned over professional duties and responsibilities largely to Jim, Junior, we suspect that he was too busy playing golf with Jimmie Clute to answer our letter.

ALVAH E. ABRAMS, 65 years, is located at 54 Church Street, Hartford, Conn. He is consulting physician to St. Thomas and the Babies' Hospital, also the Hartford Orphan Asylum. Has held no civic positions but is a member of the 20th Century Club, Get-together Club, Merchants' Country Club, Brotherhood Club and the Immanuel Congregational Church. Has held no official positions excepting that of Deacon in the Congregational Church. Is a member of the Prudential Committee and Delegate to National Convention of Congregational Church. Married July 26, 1877, Miss Jessie Davis. Has three daughters, Mrs. R. L. Russell and Mrs. W. E. Clark of Nevada and Mrs. Warren Currier of California.

LOUIS E. BLAIR, aged 64, is located at 145 South Lake Avenue, Albany, N. Y., formerly 204 State Street. Has held and holds no professional positions. Has served, professionally, no institutions or corporations. Has held no civic positions. Is a member of Mt. Vernon Lodge, F. & A. M., but has held no official position therein. Is a member of Temple Beth Emeth of which he was trustee for several years. Married in 1886 Miss Lillie Mann. Has one daughter, Mrs. Daniel H. Myers, who with her husband and two children resides at 137 South Lake Avenue, Albany, N. Y.

CHARLES M. CULVER, aged 65, is located at 36 Eagle Street, Albany. Formerly located at 1 South Hawk Street. Has held official position at the Homeopathic Hospital, also former Vice President of the American Academy of Medicine. Connected also with Albany Orphan Asylum and in 1907, President of Albany Citizens' Union. Is a Presbyterian and held the position of President of the Presbyterian Union of Albany two successive terms. Married in 1887 Miss Jessie Munsell. Has two children living; both unmarried. Dr. Culver is one of the live wire editors of the ANNALS which I trust we all take.

CHARLES C. DURYEE, aged 62 years, is located at 1716 Eastern Parkway, Schenectady, N. Y. Has been Health Officer of Schenectady,

member of State Board for Criminals and Feeble-minded, and Sanitary Supervisor of State Department of Health. Has been consulting surgeon and is now consulting physician of Ellis Hospital of Schenectady. Mayor of Schenectady in 1898-99 and 1910-11. Belongs to the Masons, K. of P., and Captain of Medical Corps, N. G., N. Y. Is affiliated with the Second Dutch Reformed Church of Schenectady. Married in 1882 Miss Hattie L. Brownell, who died in December, 1894. Married October, 1895, Miss Laura V. Campbell. Has three daughters, one residing in Yonkers, one in Albany and one in Oak Park, Ill. Dr. Duryee is at present Sanitary Supervisor for the cities of Troy, Albany and Schenectady, and Director of the Health Officers' Course as required by the Health Department of New York State.

GEORGE F. LOCKWOOD, A. B., C. E., M. D., aged 67 years, is located at Seventh and Wyandotte Streets, Kansas City, Mo. Formerly located at Batavia, Ill., where he held the position of Physician to the County House, 1886-89. Has been connected, professionally and otherwise, with the Baker & Lockwood Mfg. Co. for the past twenty years. Was in the Medical Reserve Force, 1914-18. Belongs to the "Plymouth Brethren." Is treasurer of the Board of Trustees of "Gospel Hall," 2814 Forest Ave., Kansas City, Mo. Married in 1888 Miss Ella Miner. Has four boys. Harry B. resides in Buffalo and Paul M. at 16 W. 60th St., New York City.

DANIEL D. MURRAY, aged 62 years, is located in Duluth, Minn. He was first located in Mayville, N. Dak., where he held the office of Postmaster. Is surgeon of the Minneapolis, St. Paul & Sault Ste. Marie Railway. Is a 32nd degree Mason and Shriner. Has been Health Commissioner of Duluth eight years. Is an Episcopalian. Married Miss Agnes Orkens in 1884, who died three years ago. Has two daughters, both married and living in Duluth. Is doing office practice with especial reference to intravenous medication, with which he has marked success. He enthusiastically urges us to get into it right away, as he employs two nurses and has practically a full office daily. We rejoice at Dan's success. He was one of the best fellows in the Class.

HOWARD S. PAINE is located at 148 Ridge St., Glens Falls, N. Y. Formerly of 105 State Street, Albany. Has been Ophthalmic Surgeon for Glens Falls Hospital since 1897. Has traveled in Europe and Asia extensively. Has held no civic positions. Belongs to no orders excepting Alpha Delta Phi. Is a Presbyterian. Married Miss Sarah Maria Potter. Had one child which died in infancy. We personally know that Dr. Paine ranks first in his specialty in the section where he resides.

WARREN C. SPAULDING is engaged in general practice in New York City where he located in 1892, having lived, previously, in Chicago, Ill. Has held various hospital positions. Is 64 years old and is located at Hotel Theresa, Seventh Avenue and 124th Street. Has a fine farm at Schodack on the Hudson where he spends his summers.

GEORGE F. A. SPENCER has been located at Ware, Mass., for the past thirty-one years. Formerly resided at Barre, Mass. Has been Medical

Examiner for Worcester County; connected with the Ware Hospital and Board of Health. Belongs to the Masons and Odd Fellows. Is a member of the Congregational Church and of the church committee. Married Miss Julia Smith in 1884. Has three children residing in Ware, Mass., and Detroit, Mich.

EDWARD J. STEPHENS, aged 67, resides at 1536 Elm Street, Utica, N. Y. Office, 230 Genesee Street, same city. Is Police Surgeon, Health Commissioner and Surgeon for the Masonic and Eastern Star Homes. Is 32nd degree Mason, K. T., and Shriner, also Exalted Ruler of Elks. Belongs to Tabernacle Baptist Church. Married Miss Mary F. Stearns. Has two children, a son and daughter, both residing in Utica.

MENZO B. MATTICE is located at Sedro-Wooley, State of Washington. Formerly located in Albany. Has been Health Officer, Hospital Superintendent and Examiner for various insurance companies. Is a Mason and an Elk. Has been W. M. of the Masonic Lodge. Is a Presbyterian. Married in 1883 Miss Fannie Bleeker. Has five children, all residing in Seattle.

LEONARD A. FRAZER resides in the winter in Sanasota, Fla., and in the summer in Mechanicville, N. Y. He resided for a number of years in Amsterdam, N. Y. Has been an official member of the Methodist Episcopal Church for fifty years. Married in 1870 Catherine Slingerland. Has four children, one son a lawyer in Mechanicville, one son in Glens Falls and one son in Preston Hollow. His daughter resides in Hartford, Conn., and is a harpist of some note.

NORMAN W. KELSO also resides in Mechanicville. Is 68 years old. Has held various town and city positions. Belongs to the Masons and Odd Fellows. Is a Presbyterian. Married in 1885 and has three children, all residing in Mechanicville. Dr. Kelso writes that he has never engaged in the practice of medicine but succeeded his father in the mercantile business. Was Postmaster four and one half years. Has been in real estate and insurance and is now President of Mechanicville Barge Co., Carey Brick Co., and Secretary and Treasurer of Eckerson Bedding Co.

Your Historian also learned the following additional facts relative to two deceased classmates: NELSON EVEREST, who died May 29, 1921, was 69 years old and, while he died at Garoga, had practiced in Gloversville, N. Y. Married Miss Myra Doren who survived him just one month to a day. Dr. Everest was a member of the Methodist Church and leaves two children, both residing in Johnstown, N. Y.

Miss Gertrude M. Krug writes that her father, DR. GEORGE A. KRUG, died in Utica, January 8, 1918, after a three-day illness of pneumonia at the age of 65. He married Emma Keffer of Albany in 1883. He is survived by his wife, Miss Gertrude Krug and Prof. George H. Krug of the Troy High School. Dr. Krug was a member of the Baptist Church.

DR. R. W. TERWILLIGER resides at Spraker's Basin. Has been Health Officer and State Sanitary Inspector, also R. R. Surgeon. Is 65 years old. Member of the Presbyterian Church. Married Miss Lizzie Bender in 1887. No children. Dr. Terwilliger, at the time of writing, was recovering from the effects of a serious auto accident.

HOWARD MILLER's last known address was 624 E. 16th Street, Brooklyn, N. Y. No report.

Of your Historian, there is little to be said beyond the fact that thus far he has kept out of jail, is 63 years old and still located where he first landed. In his really young days, when he believed the world was breathlessly awaiting his advent professionally to introduce wonderful reforms, he held a few insignificant civic positions. The Methodist Church endures him, and the Free Masons tolerate him. The most wonderful thing in his career is that a woman of unusually keen intuition and natural accomplishment has lived continuously with him thirty-nine years. He has two daughters, both unmarried. He wishes the Class of '81 as they roll by in their sedans and limousines to, at least, halt and say "hello."

Thus imperfectly do we call the roll for the fourth decade of the Class of 1881. With scarcely an exception do the survivors in this age of materialism acknowledge acceptance of a belief in the Christian religion and adherence to the faith of their fathers. Many have won success and prominence along special lines, but the majority have filled that wonderful sphere which some tell us is becoming obsolete, but which we believe is coming again into its own, that of the general practitioner—the family "Doctor." And as we, during our career, have watched the passing of various types and conditions of men, and viewed the following, wet eyed to the river's brink, by hosts to whom they were not only counselor, teacher and friend, but the greatest of earthly support, we have believed that if any class of men would be greeted as did Bunyan's "Great Heart" of whom it was said that "All the trumpets sounded for him on the other side," it would be the old country doctor, the rounding out of whose career Will Carleton so beautifully described when he sang:

In the daytime or the nighttime
 He would rally brave and well,
 Tho' the summer lark was fifeing
 Or the frozen lances fell.
 Knowing, if he won the battle,
 They would praise their Maker's name;
 Knowing if they lost the battle
 Then the Doctor was to blame.

* * * * *

But perhaps it still is better
 That his busy life is done.
 He has seen old forms and faces
 Disappearing one by one.

He has learned that Death is Master
 Both of science and of art;
 He has done his duty fairly
 And has acted out his part.
 And the strong old country doctor,
 And the weak old country doctor,
 Is entitled to a furlough
 For his head and for his heart.

Respectfully submitted,

WILLIAM B. WEBSTER,

Historian of the Class of 1881.

HISTORY OF THE CLASS OF 1882

Mr. President and Members of the Alumni Association of the Albany Medical College:

It is a pleasure for the Class of '82 to greet the Alumni, and the new Class of '22, whom we welcome to our association with the best wishes for their success in their chosen profession.

Forty years lie between you and us. Years that have brought many joys and some sorrows, but I trust the pleasures and joys predominate. Looking back over the years, I cannot imagine how quickly they have passed. The Class of '82 graduated forty-nine members, of whom as far as I could ascertain twenty-three have passed on. We are proud of our Alma Mater, and more than pleased at the high standing she has attained. I will not take your time, but will make a more extended report for publication in the proceedings of the Alumni.

I wrote to twenty-six of the surviving members of the class and have had answers from eight, have had four returned by postmaster, one marked "Deceased" and others address unknown.

Deaths, as far as I can ascertain: JAMES T. DORNET, March 1, 1883; WM. M. ARMSTRONG, May 31, 1884; JOSEPH W. RILEY, January 15, 1886; JOHN W. MANN, March 4, 1888; DANIEL C. HAZEN, April, 1888; FRED HOLCOMB, March 28, 1891; HARRY W. BURTCH, February 12, 1896; WM. S. DE GOLIA, September 19, 1907; REYNOLDS J. FITZGERALD, August 18, 1906; GEORGE J. HOLMES, December 14, 1907; EDGAR E. MARYOTT, February 12, 1904; SYDNEY F. ROGERS, March 6, 1912; MILTON PARSONS; CALVIN E. CARPENTER, November, 1912; HENRY D. BLANCHARD, June 26, 1912; GEORGE HUDSON; FRANK A. PALMER; LENNON THOMSON; WALTER W. SCOFIELD; HORACE R. POWELL, December 30, 1914; GEORGE H. HOUGHTON; WILLIAM KAMP, March 7, 1922; E. FRANK JOHNSON.

I have received letters from the following:

C. Q. BYINGTON of Ossining, N. Y., writes: I hope to be able to be present at the reunion of the Class of '82 next Monday. After graduation in 1882, I located at Croton-on-Hudson, N. Y., where I practiced for thirteen years, when my health gave out (tuberculosis) and I was knocked out for seven years, but came back. I don't like to talk much about that

seven years. Six months were spent in Colorado, and six and one-half years in the Catskill Mountains. In April, 1902, I removed to Ossining, N. Y., and resumed practice, and have been on the job ever since (for twenty years) except for a month or two vacation every year.

Became Secretary of Westchester County Medical Society in 1905 and 1906, and President of the Society in 1907; have been Attending Physician to Ossining Hospital for eighteen years and President of the Hospital Staff at the present time.

Married the girl of my choice in 1883, and she is with me yet. Four children have come to us. My youngest boy was killed in action in France in 1918. My other children, two boys and a girl, are all married, and my wife and I are alone again, just as we started. Some experiences have been crowded into that forty years, which I would not care to face again, but on the whole, I have not many regrets. The bread and butter problem is solved, and I find much in life to contribute to my enjoyment and happiness and expect to be on the firing line for some time yet. With best wishes for your own health and prosperity, and greetings to the Class of '82.

W. E. DEITZ, Berne, N. Y., writes: Had intended to give you a good history of myself; can't do it. I have been to Albany Hospital from January to a few days ago, and still am in care of a trained nurse. Would very much like to be present at the Class Reunion of '82. I wish the members of the Class a hearty welcome, good luck and God speed.

H. C. FINCH, Broadalbin, N. Y., writes: I located in my home town after graduation forty years ago and had a very active practice for thirty-five years. My son graduated from the Albany Medical College with the Class of 1911; since that time he has been associated with me, and I have shifted most of the professional work to him, he taking the lead and I acting as his consultant and assistant. I hope to be with you at the reunion of the Class, June 12. With best wishes and kindest regards to all the Class of '82.

WILLARD GILLETTE, Roseboom, N. Y., writes: Your letter inviting me to the reunion of the Class of '82 gladly received. As I will be unable to attend, I will say, I am still in Roseboom and have been here since August, 1883. Have always had a good practice and, hence, have no fault to find on that score.

Have two sons, one a professor of music in Evansville, Ind., and the other a merchant in my home town, Roseboom, and am very proud of both.

Was married in October, 1882, and my wife and myself are enjoying very good health, and both are able to look after the doctor's practice, etc.

Hope those of the Class of 1882 who are living, will be with you on June 12.

FRANK L. HARTER, Syracuse, N. Y., writes: In reply to your request for résumé of past forty years. Graduated with the Class of '82, practiced in my home town until 1891, then came to Syracuse where I have since practiced. Have been a Member of the Staff of the Hospital of the Good Shepherd for twenty-five years, doing general medicine, resigned as

Chief of Staff this year and am now on Consulting Staff. Have also been member of the faculty of Syracuse University Medical College for many years, teaching Clinical Diagnosis. My relations in both positions have been very pleasant, and I have enjoyed the work very much. At present am only doing limited amount of work as my health is not the best. My family—my wife and five children, three boys and two girls. Boys and one girl married. Eight grandchildren.

Have been blessed in many ways, and much to be thankful for. My lack of strength to do the things that come to me is my greatest hardship. Had so hoped to be with the Class this year, and had made all preparation to be there, but have slumped this week and am afraid will not be able to make it. Wishing the "Boys" the best of everything, with my love and regards.

EDWARD F. MARSH, Brooklyn, N. Y., writes: Have been looking forward for many moons to this reunion of the old Class, and now just home from the hospital after a cholecystectomy, and not able to say whether I shall be able to attend or not is—shall I say? hard luck at an enforced absence, or good luck in making such an excellent recovery.

After graduation practiced in Fulton, N. Y., until 1893, when I came to Brooklyn, N. Y., where I still reside, and although my cholecystitis and resultant operation have called a temporary halt in my professional activities, I expect to resume practice in September. Family circle consisting of wife, daughter and son is still unbroken, Thank God! My son graduated in medicine in 1909, and enjoys his professional work.

Should I not be able to be present in person, please convey to my fellow Alumni and especially to the surviving members of the Class of '82, my regrets at an enforced absence.

J. R. NEWTON, Scranton, Pa., writes: I know of nothing of interest to relate.

JOHN B. WASHBURNE, Delmar, N. Y., writes: Forty years, it does not seem so! After graduating I practiced a short time at Lake George (Caldwell) then pulled up and went to Colorado. 1883 found me back and located in Westerlo, Albany County, where I stayed four years, then went to Rensselaerville, where I practiced about five years. In 1892, I moved to Delmar and have been here since and will probably stay. In 1885, I married Caroline Gallup of East Berne. We are both enjoying good health. Expect to be on hand the 12th.

W. B. SABIN, Watervliet, N. Y.: Is still practicing at Watervliet—family consisting of wife and our married daughter living in Canada; answer to the name of grand-dad to a lively little granddaughter.

Respectfully submitted,

WILLIAM B. SABIN,

Historian of the Class of 1882.

HISTORY OF THE CLASS OF 1902

Members in class.....	25
Number graduated (one from Class of 1901).....	26
Number living.....	23
Number deceased.....	3

LA SALLE ARCHAMBAULT, Albany, N. Y.: After graduation, acted as clinical assistant to Professor Henry Hun for about one year. Then went abroad where he devoted three years to post-graduate work in Neurology and Neuropathology. Most of his time was spent in Paris, Berlin and Graz.

Upon his return, he joined the teaching staff of Albany Medical College and was successively instructor, lecturer, adjunct professor and professor in the department of Neurology. At present has the distinction of holding the latter position.

Has been actively engaged in practice since 1907 and limits his practice exclusively to diseases of the Nervous System.

Is a member of the County and State Medical Societies, American Medical Association and American Neurological Association.

Married since 1918.

THOMAS CARNEY, died February 6, 1915: Practiced in Schenectady. Carney was a very popular officer of his regiment and an excellent physician.

ELWIN CHAMPLIN, Fleischmanns, N. Y.: After graduating, practiced for a year at Fleischmanns and then a year at Roxbury. Returning to Fleischmanns, he established a large practice and became active in village affairs.

Opened a drug store in 1911 and conducted it with his practice.

Is a member of the Board of Education and has been Health Officer of several local villages for a number of years.

Is now president of Fleischmanns Village.

Recently sold his interests and expects to leave Fleischmanns next fall.

KENT S. CLARK, Schenectady, N. Y. (not heard from): Clark, we believe, enjoys a large practice in Schenectady where he located shortly after leaving college.

JOHN B. CONGDON, Albany, N. Y.: Since graduation has been busy trying to earn something to eat, something to wear and before Volstead threw a wrench in the works—something to drink. Since this calamity, has had to survive on home-brew and BB—bootleggers' booze—whenever and wherever he can get it.

Spent a year at Lee Hospital, Rochester, and thereafter did general work for four years in Albany. Then took some post-graduate work in New York and has since limited his practice as much as possible to Surgery and Gynecology.

Is Attending Surgeon at Homeopathic Hospital and of its dispensary. Is a member of the County Homeopathic Society of which he is president, the State Homeopathic Medical Association, American Institute of Homeopathy, Albany County Medical Society, American Medical Association and American College of Surgeons.

Member of the Masons, Odd Fellows, Elks and Fort Orange Club.

The above list of organizations accounts for the fact (according to Congdon) that he is poor and gravely doubts his ability to attend the reunion if it were held outside of Albany.

HUGH M. COX, New York City: Internship at Troy Hospital, 1902-03. Started practice in New York 1903.

Successively assistant and instructor in Nervous and Mental Diseases in New York Post-Graduate Medical School and Hospital 1904-08.

Neurology not being to his liking, switched to surgery and was appointed assistant surgeon at St. Bartholomew's Hospital and later at the Woman's Hospital.

In 1918, resigned all hospital appointments and is now courtesy surgeon and gynecologist at the Woman's, Misericordia and Bronx Maternity Hospitals and consulting at a couple of minor institutions.

Served as Captain during the World War.

Member of the County, State, American Medical, Harlem Medical, Woman's Hospital Alumni and Military Surgeons of the United States Societies.

Married since 1910.

EDWARD A. DAWSON, Brooklyn, N. Y.: Cannot think of a darn thing to tell the boys except that he is about as successful as the average man, not setting the world afire but able to keep the wolf guessing.

Is connected with the Bushwick Hospital and has done considerable industrial work, his chief field of investigation and study being with the Julius Kayser Co., employing 3500 people.

Served as First Lieutenant during the late war with the 61st Pioneer Infantry.

Unmarried but has rapidly developing prospects.

AUGUST J. FREUTEL, New York City, died April 29, 1913: Freutel served an internship at Fordham Hospital and developed a large general practice in Bronx Borough. He was Master of his Masonic Lodge, was a director of Bronx Bank and was greatly esteemed by all who knew him.

JOHN H. GUTMAN, Albany, N. Y. (not heard from): We understand Gutman enjoys a large practice in Albany where he has practiced since graduation.

STILLMAN S. HAM, Schenectady, N. Y.: Has been located in Schenectady since graduation. At present, is Attending Physician at Ellis Hospital and Old Ladies' Home.

In 1918-19 was Captain in the Medical Corps, U. S. Army, and was attached to the Base Hospital at Camp Gordon.

Is married and has one son.

EARL H. JACKSON, Schenectady, N. Y.: Located in Schenectady June 26, 1902, and has been in general practice there ever since.

Served as Coroner, Schenectady County, 1909 to 1915. When our country went to war, he enlisted in the Navy as Surgeon with the rank of Lieutenant and served four years, three and one half months.

The world has been kind to Jackson and he has had "few hard knocks and has no kick coming." Would be glad to see any of the fellows at his home in Schenectady and will do his best to show them a good time.

Is married and has a daughter and two sons.

ROBERT J. KAHN, Lakewood, N. J.: Kahn writes: "I left New Rochelle about two years ago on account of the increase of population and hoped to

be alone here in the pine forests. But they've divided all the land between my place and the town of Lakewood into building lots and now I'm wondering where we go from here."

He will be at the reunion. His activities are nil.

He has not practiced since leaving college.

FRED H. LADD, Canton, N. Y. (not heard from): Has practiced at Canton since graduation.

FRED E. LETTICE, Los Angeles, Cal.: "The reunion will find me absent," writes Lettice, "but a separation of 3500 miles will not prevent my thoughts being with you."

After experiencing the vicissitudes of Eastern practice for ten years, he took somewhat belatedly Horace Greeley's advice to the young man and went West. He located in Los Angeles and is still congratulating himself on the move.

Practice limited to surgery and for several years was Associate Professor of Surgery in P.&S. College, resigning a year before this college closed. He then accepted the professorship of Abdominal Surgery and Gynecology in the College of Medical Evangelists, the only class "A" school out there. For years he has been Senior Surgeon to the L. A. Co. Hospital and the White Memorial Hospital. At the County Hospital he holds weekly operative clinics for the Senior and Junior Classes.

Married and has one son, Fred, Jr.

Has a modern home in the fashionable part of the city and the latch string is always out for any of the boys of 1902.

"Give my love to all the fellows and believe me when I say I regret not being with them June 12th."

M. JOSEPH MANDELBAUM, New York City: "It is with deep regret that I will be unable to attend the 20th class reunion, inasmuch as this takes place on the 12th of June and on the 13th I leave for Europe for about four months' post-graduate work in Oto-rhinolaryngology. I had hoped to be with you but did not think the reunion would be so late in the year. I hope the meeting will be a great success and that most of those who graduated together are still "on top of the crust" and upholding the traditions of our Alma Mater. Somehow, the great majority of all the graduates of the old A. M. C. seem to hold their own wherever they are located which speaks well for those who guided our destinies early in our medical career."

Mandelbaum is the Director of the New York Diagnostic Institute as well as its founder.

JOSEPH MARK, New York City (not heard from): Mark has been in general practice in New York since leaving college.

EDWIN A. MASON, Upper Troy, N. Y.: "Yours received—two of 'em—and I'm glad to know you have survived the crime wave and that no one—doctor or gunman—has seen fit to kill you."

Has practiced in Upper Troy since finishing his internship at St. Peter's Hospital.

Married and has a son.

HARRY E. MERENESS, JR., New York City (not heard from): Mereness is now in Europe, we believe, as it was his intention to sail early in June. He is doing general work in New York at 250 West 104th Street.

WILLIS E. MERRIMAN, Poughkeepsie, N. Y. (not heard from): Merri-man is connected with the Hudson River State Hospital at Poughkeepsie. He has followed this line of work since finishing his internship at Albany Hospital.

FRED C. REED, Schenectady, N. Y.: Interne at Ellis Hospital 1902-03. Later, on dispensary staff until 1907. Surgical staff, Ellis Hospital 1907-17. Resigned. Consulting Surgical Staff, Ellis from 1907 to present. President Schenectady County Medical Society about 1912.

Delegate to New York State Medical Society for the past ten years.

"Army experience was negligible as I did not get across."

Time in the Army was spent at Oglethorpe, Ga.

Married and has two children, a boy and a girl.

FRANK M. SULZMAN, Troy, N. Y.: After graduation served as interne at Troy Hospital. Following this, spent some time at the Johns Hopkins and the Presbyterian Eye and Ear Hospitals in Baltimore. Also did special work at New York Eye and Ear Infirmary and visited clinics in Vienna.

Then opened an office in Troy and has remained there since.

Is Attending Ophthalmologist and Otologist at the Troy and Cohoes Hospitals, St. Colman's Home and St. Vincent's Orphan Asylum. Attending Rhinologist and Laryngologist at St. Joseph's Maternity, Troy and Cohoes Hospitals.

Was made a fellow of the American College of Surgeons at the Montreal meeting, 1920.

"Two young M.D's.(?) and a promising little trained nurse(?) keep Mrs. Sulzman and myself busy since their arrival several years ago."

C. W. SUMNER, Granville, N. Y.: Went to North Granville in 1902, practicing there until 1918 when he moved to Granville. Has been doing general work. Will tell us the rest at the reunion.

J. PARKER TALMADGE, Brooklyn, N. Y.: Internship of two years at Nassau Hospital, Mineola, L. I. Then appointed Assistant Superintendent of Long Island College Hospital where he still may be found.

Talmadge practically started and has developed the work of caring for steamship employees about New York Harbor. The multiplicity of diseases found among these people coming as they do from all parts of the world has made of him a particularly sharp diagnostician. We say it for him because he would not say it for himself.

Married.

ELBERT G. VAN ORSDELL, Brooklyn, N. Y., died March 25, 1911: Van Orsdell opened an office in Brooklyn immediately after graduating. He specialized in diseases of women and children and built up a very large practice.

Besides a widow, a boy and a girl survive.

CHARLES P. WAGNER, St. Johnsville, N. Y. (not heard from): Wagner spent a year in Samaritan Hospital, Troy, before starting practice in St. Johnsville where he is still located. You may as well stop and see him if you're driving through his town -the cops'll get you if you drive faster than a walk anyway.

G. VAN VORIS WARNER, Red Bank, N. J.: "After graduation, continued in commercial lines, medical, traveling over this country and Europe."

In 1910 took over the practice of a retiring physician in Fair Haven, N. J., where he remained for five years.

In 1915 moved to Red Bank where he enjoys a lucrative practice in one of the garden spots of the East.

Member of the A. M. A., State Society, County Society of which he is President, Practitioners Society of Eastern Monmouth of which he is Vice-President, of the Mosquito Extermination Association of New Jersey and Treasurer of the County Mosquito Extermination Commission.

A member of the Masons of which he is a Past Master, the Shrine and the First Thrice III. Master of Field Council No. 12, R. & S. M., all of New Jersey.

Married.

Respectfully submitted,

HUGH M. COX,

Historian of the Class of 1902.

At the conclusion of the reading of the class histories, Dr. Lamb presented the report of the Nominating Committee. The report of the Committee was before the Association for action and on motion of Dr. James N. Vander Veer, seconded by Dr. Gebhard L. Ullman, nominations were closed, the report was accepted and adopted and the Recording Secretary was instructed to cast one ballot for the officers proposed by the Committee. The Recording Secretary cast the ballot and President Conley announced as duly elected the

OFFICERS FOR THE YEAR

PRESIDENT, DR. MARCUS A. CURRY ('04), Morris Plains, N. J.

VICE-PRESIDENTS, DR. CHARLES C. DURYEE ('81), Schenectady, N. Y.

DR. HARRY V. JUDGE ('14), Albany, N. Y.

DR. DONALD G. BUCHANAN ('92), Troy, N. Y.

DR. JAMES T. PARK ('94), Hudson Falls, N. Y.

DR. KENT S. CLARK ('02), Schenectady, N. Y.

RECORDING SECRETARY, DR. J. MONTGOMERY MOSHER ('89), Albany, N. Y.

CORRESPONDING SECRETARY, DR. CLINTON B. HAWN ('06), Albany, N. Y.

TREASURER, DR. ROBERT BABCOCK ('84), Albany, N. Y.

HISTORIAN, DR. WILLIAM KIRK ('99), Troy, N. Y.

EXECUTIVE COMMITTEE, DR. J. M. W. SCOTT ('96), Schenectady, N. Y.
(Term expires 1925) DR. C. L. MYERS ('95), Albany, N. Y.
DR. ARTHUR E. WELLS ('11), Schenectady,
N. Y.
DR. F. M. SULZMAN ('02), Troy, N. Y.

Following the election of officers, President Conley addressed briefly the graduating class extending a cordial welcome to membership in the Association. There appearing no other business, on motion of Dr. Furlong, the Association adjourned. The Alumni then proceeded by automobile to the Albany Hospital for the

ANNUAL ALUMNI DINNER

The dinner of the Association was notable in many respects, most particularly fortunate in the guest of the evening, Rear Admiral William S. Sims, United States Navy. The spacious dining-room of the Nurses' Home was beautifully decorated and the charming sight was accentuated by the white and pink costumes of the nurses, who had volunteered to serve the dinner. President Conley officiated as toastmaster, and with him at the speakers' table were Admiral Sims and Mrs. Sims, Chancellor Richmond and Mrs. Richmond, Trustees Huyck, Kelley, Parker, Whitney, Olcott and Professor Elting. Admiral Sims delighted the audience by the nautical bluntness and forcefulness of his description of naval needs of the present and future, stressing the permanence of aerial and submarine warfare, and predicting the use of offensive measures, such as gas, in future contests. He was happy in the humorous conclusion of an address which gave little hope of relief from war in the future. A standing vote of thanks was unanimously given. Professor Elting spoke for the Faculty and gave an emphatic promise to the Alumni of a curriculum with proportionate blending of theoretical and practical instruction, holding fast to the purpose of the college to educate physicians and surgeons for attendance upon the sick and injured.

COMMENCEMENT EXERCISES

The ninety-first commencement exercises of the Albany Medical College were combined with the one hundred and twenty-fifth commencement of Union College and were held at the First Presbyterian Church, Schenectady, N. Y., on Monday, June 12, 1922, at ten o'clock.

The graduating exercises were opened by singing the 117th Psalm, followed by a prayer. The Albany Medical College trustees, faculty and students formed part of the procession from the campus to the church. The Honorary Chancellor's Address was delivered by Rear Admiral William S. Sims, United States Navy.

The degrees were conferred by the Rev. Dr. Charles A. Richmond, Chancellor of the University. The following named candidates for the degree of Doctor of Medicine were presented by Dean Ordway, representing the Faculty:

GRADUATES—CLASS OF 1922

Raphael A. Bandove, Haifa, Palestine.
Harold Roberts Browne, Cobleskill, N. Y.
Harold William Kinghorn Dargeon, New York City.
Alvah Robert Davignon, Corinth, N. Y.
Ames L. Filippone, Newark, N. J.
Jere John McEvilly, Johnstown, N. Y.
William Mitchell Mallia, Schenectady, N. Y.
Charles Fayette Rourke, Holyoke, Mass.
Harold Daniel Sehl, Albany, N. Y.
George Oliver Tremble, Saranac Lake, N. Y.
Beverly Leland Vosburgh, Schenectady, N. Y.
John Charles Younie, Schenectady, N. Y.

The commencement procession, a time-honored and impressive ceremonial, formed at half after nine o'clock. The Trustees and candidates for honorary degrees met at the President's House, the Faculty at Silliman Hall, the Undergraduates and Alumni, the younger classes preceding, and the graduating class at the College Chapel. The line of march was past Silliman Hall and the President's house to the church, where seats were reserved for those taking part in the procession.

Chancellor Richmond announced the award of prizes:

The Vander Poel Prize, endowed by Mrs. Gertrude W. Vander Poel, in memory of her husband, the late S. Oakley Vander Poel, for many years a professor in the College, consisting of a clinical microscope and accessories, offered to the senior student passing the best bedside examination in general medicine, was awarded to Dr. John Charles Younie.

The prize, consisting of an ophthalmoscope, offered by Dr. Merrill for the highest standing during the year in ophthalmology and otology, was awarded to Mr. Louis Simon Poskanzer. Mr. Jasper Lewis Robertson, honorable mention.

The Townsend Physiology Prize, endowed by the late Professor Franklin Townsend, Jr., M. D., was awarded to Mr. Kenneth C. Waddell, for passing the best examination in physiology at the end of the first year of study.

Dr. Boyd's Prize to the senior student having the highest standing during the year in obstetrics was awarded to Dr. John Charles Younie.

The Daggett Prize, consisting of sixty dollars, for the best "anatomical specimens," was awarded to Messrs. James William Bucci and Max Michael Simon, and the second Daggett Prize, amounting to thirty dollars, was awarded to Mr. Douw Schuyler Meyers; honorable mention, Louis Simon Poskanzer.

The Daggett first prize for the best "deportment irrespective of scholarship," consisting of sixty dollars, was awarded to Dr. Beverly Leland

Vosburgh, and the second prize, consisting of thirty dollars, was awarded to Dr. William Mitchell Mallia.

The Bigelow Prize, endowed by the late Professor John M. Bigelow, M. D., consisting of eighty dollars, offered to the senior student passing the best examination in diseases of the nose and throat, was awarded to Dr. John Charles Younie.

The exercises concluded with the "Ode to Old Union" and the benediction pronounced by the Chancellor.

ABSCESSES OF THE LARYNX AND TRACHEA FOLLOWING INFLUENZA

*Read at the Annual Meeting of the American Laryngological Association,
Washington, D. C., May 3, 1922*

BY CLEMENT F. THEISEN, M. D.

Albany, N. Y.

No attempt was made by the writer to cover the literature on this subject. It is an almost impossible task, and it is questionable whether the report of many cases, and I do not know whether there have been many cases of this kind, is of any great interest, so that only a brief review of the writer's own cases will be given in this paper.

Judging by the fact that the writer has been able to find records of only six cases of abscess of the larynx and trachea, occurring during epidemics of grip and influenza, in his own practice, during the past twenty-five years, this complication must be fairly rare.

From an etiological standpoint these cases are of particular interest, mainly perhaps because they *are* so difficult to explain. Four of the cases came under the writer's observation during the severe influenza epidemic that swept the country during the winter of 1917-18. None of us will forget the appalling death rate of that epidemic very soon.

One case was seen during an epidemic of influenza twenty-four years ago, and one during the epidemic of the past winter, which perhaps might be properly called "grip." It was certainly nothing like the influenza epidemic of 1917-18, at least not in Albany. But while the mortality rate was not nearly so great, I think we will all agree that there were almost as many ear and sinus complications as in the winter of 1918, but, in the writer's practice, not as many serious throat complications as in 1918. The writer's six cases were all adult males between the ages of thirty and forty-two years.

The bacteriology of five of the cases was worked out. In none of the cases was the influenza bacillus found. In three, cultures showed mixed staphylococcus and streptococcus aureus infection, and in the other two streptococcus aureus.

I suppose these abscesses in the larynx and trachea following influenza are partly the result of the run down condition of the patient. We could understand the etiology better if the larynx and trachea contained some of the same kind of lymphoid tissue that there is in the pharynx, which is so subject to infections of all kinds. There is of course very little lymphoid tissue in the larynx and trachea. I suppose these abscesses are in a way analogous to the abscesses of the lateral columns of the pharynx. We have all seen many times, particularly during grip and influenza epidemics, abscesses in apparently clean throats. I mean in throats from which all the lymphoid tissue, tonsils and adenoids, had been thoroughly removed. It is impossible to remove all the lymphoid tissue from the pharynx, and in throats from which the tonsils and adenoids have been removed, the infection occurs in the lymphoid tissue in some other part of the pharynx, either in the lateral columns, at the base of the tongue, or low down near the pyriform sinuses. So that I believe that the laryngeal and tracheal abscesses, just as is the case in infections of the lateral pharyngeal columns, start as localized inflammatory processes, and then owing to the patient's run down condition, plus the addition of pyogenic organisms, the abscess gradually develops.

CASE REPORTS

CASE I

The first case I wish to report occurred during an influenza epidemic during the winter of 1898, and was particularly severe in Albany and the surrounding towns.

The patient, a man aged 34 years, was referred to me by Dr. Gordinier of Troy. Briefly, the history of this case, that Dr. Gordinier gave me, is as follows: Two months before I saw him, he had a typical attack of influenza with a broncho-pneumonia, which ran the usual course. He had the usual prostration that grip patients always have, after they have apparently recovered, but he did not gain any strength, and lost steadily in weight. His difficulty in breathing started about three weeks before Dr. Gordinier referred him to me. This became steadily worse, and the day he came to my office he was cyanotic, and breathed with a decided inspiratory stridor. While I was examining him his breathing became so bad that I thought I would have to do a tracheotomy in the office. The laryngeal mirror showed the presence of a large, smooth, tumor mass,

starting at about the second tracheal ring and extending down as far as I could see. I rushed him to St. Peter's Hospital, as I had to lecture to a class of students there, and by the time we reached the hospital, he had practically stopped breathing. We got him into the amphitheater and put him in a chair that could be tilted well back, and I performed an immediate tracheotomy. There was no time for even a local anesthetic. The incision through the tracheal wall was at once followed by a gush of pus and blood which he coughed clear across the room, through the tracheal wound. Unfortunately, in this case, no bacteriological diagnosis was made, and I did not suspect the presence of the abscess before operating. In the laryngeal mirror it looked like a tumor mass. He did very well for six or seven days, and then developed an aspiration pneumonia, from which he died on the thirteenth day.

CASE II

Abscess of the ventricular band filling left half of larynx. This patient, a man aged 31 years, had an attack of influenza during the epidemic of 1918. He had the usual symptoms in the beginning, with an intense sore throat, and an acute double frontal sinusitis. This condition cleared up under the usual treatment but, as in the first case, he remained very weak and lost weight steadily. His difficulty in breathing started about the third week from the onset of the attack, and about a week after I last saw him. His difficulty in breathing was quite apparent when he walked into my office, and on laryngeal examination, a smooth mass was seen which filled the left half of the larynx, and apparently originated in the ventricular band. I made a diagnosis of abscess, and under cocaine anesthesia made a free incision with the old Schroetter guarded knife. There was an immediate free escape of pus, and he was placed with his head well forward, for a long time, so as to lessen the danger of aspirating any of the pus. Daily applications of fifty per cent alcohol were applied to the abscess cavity, which drained for about a week. He made an uneventful recovery, and got his old weight back. Bacteriological examination of the pus showed a mixed streptococcus and staphylococcus aureus infection.

CASE III

Abscess of larynx, right side, also apparently originating in ventricular band. This case also occurred during the influenza epidemic of the winter of 1917-18. This case was so similar to the last one that I will not report it in detail. Patient, a man aged 31 years, had influenza during the epidemic mentioned above. He had an acute middle ear, left side, requiring incision, and an acute right maxillary sinusitis. This was opened through the inferior meatus, and treated in the usual way. The abscess was opened as in Case II, and the cavity swabbed daily with fifty per cent alcohol. He also made a complete recovery. Microscopical diagnosis, mixed streptococcus and staphylococcus infection. Neither of the above two cases developed any broncho-pneumonia.

CASE IV

Abscess on the posterior laryngeal wall, developing about the third week, right after an influenza attack, during the same epidemic. This patient, a man aged 42 years, started with the usual sharp sore throat and acute rhinitis, without however any sinus or ear complications. On the fourth day of the attack he developed a slight broncho-pneumonia, which cleared up in the course of a week. I did not see him for about ten days after this, when he came to my hospital clinic. He was breathing with great difficulty, and examination showed the presence of a large smooth mass on the posterior wall of the larynx. This was opened under cocaine anesthesia, with the Schroetter knife, and proved to be an abscess. Examination of the pus showed a streptococcus aureus infection. He also made a good recovery, under the same line of treatment.

CASE V

Abscess of the larynx, right ventricular band. The patient, a man aged 37 years, had a typical attack of influenza in January, 1918. He had no sinus nor ear complications, but ran a very high temperature with great prostration, for over two weeks. He also had a diffuse bronchitis, but no definite broncho-pneumonia. He was discharged, as apparently cured, on the eighteenth day, and I did not see him again for a week, when he came to the office complaining of difficulty in breathing. He lost weight steadily since the beginning of his influenza attack. On examination, the laryngeal mirror showed a smooth mass almost filling the right half of the larynx. A diagnosis of abscess was made, and the abscess incised under cocaine. Cultures and smears from the pus showed a mixed streptococcus and staphylococcus aureus infection. The abscess cavity was treated in the same way as in the other cases. He made a good recovery, but got his strength back very slowly.

CASE VI

This case occurred during the grip epidemic of the past winter. I was called to see this patient, a man 40 years old, late in December, by his family physician. He was just recovering from a sharp attack of grip, but for several days had been troubled with an irritating cough, and very serious difficulty in breathing. The day I saw him, he was quite cyanotic, and there was a well marked inspiratory stridor. After spraying his lower pharynx with a two per cent cocaine solution, a smooth globular tumor could be seen, with the laryngeal mirror. This, as nearly as I could judge, started at about the third tracheal ring, on the right side, and almost filled the trachea. Right after getting back to my office, I received an urgent call to come back to the patient's house. I found him breathing with great difficulty, and performed an immediate tracheotomy. A large amount of pus and blood was coughed out, through the tracheal wound, and cultures and smears proved a streptococcus aureus infection. He did very well for four or five days, when he developed a pneumonia, undoubtedly an aspiration pneumonia, and died on the eighth day following the operation.

In conclusion, there are one or two points worthy of note. The fact that no influenza bacilli were found in the pus is interesting. I have no doubt that they would have been found in the secretion from the larynx and trachea, in all the cases, early in the attack. The four laryngeal cases recovered probably because the abscesses were high enough up in the air passage, so that the patient could constantly cough out the pus. It is a question whether the two trachea cases could have been saved, if there had been time enough to have used Jackson's tubes, immediately sucking out most of the pus, after incision, but I am doubtful if it would have made any difference. The aspiration pneumonias develop simply from the constant flow and aspiration of pus into the bronchi, particularly the right bronchus.

MEDICINE

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INDUSTRIAL MEDICINE IN ITS RELATION TO WORKMEN'S COMPENSATION

*Read at the Meeting of the New York State Society of Industrial Physicians and Surgeons
held at Albany, N. Y., April 17, 1922*

By LEONARD W. HATCH, PH. D.
Manager, New York State Insurance Fund

In order to understand the relation of industrial medicine to workmen's compensation it is practically necessary to consider the relation of medical practice generally to the situation created by workmen's compensation laws. The main features of the latter are common to the former for the most part and the relation of industrial medicine to workmen's compensation is largely a matter of more highly developed characteristics of the general situation, as I think will become apparent in the course of this discussion.

What I have to say will refer more especially to conditions in New York State, although in general features the situation here does not differ essentially from that under any compensation law.

It is not generally realized how largely the workmen's compensation law has changed relationships and imposed new obligations, for the medical profession. This is probably due to the overshadowing of that change by the greater and more far reaching alteration made in the relations and duties of employer and employee. But the former is fundamental both in itself and in its relation to the latter. Most persons think of a workmen's compensation law as one to provide recoupment of injured employees in part for loss of wages while disabled from work by accident. But there is another and separate benefit besides that, by provision that in addition to compensation for wage loss the injured employee shall receive such medical or surgical treatment in whole or in part as may be necessary for his recovery. How extensively this provision makes the medical profession a party in interest in workmen's compensation is indicated by the fact that in New York State while only one in six industrial accidents involves compensation for wage loss, nearly every one entails this medical benefit. That is, the medical benefit attaches to a quarter of a million or more accidents per year and the annual bill for these medical benefits runs into several millions of dollars.

In addition to the part which the medical profession must play in the medical care which must be provided for injured employees is a second rôle which the profession is called upon to perform under compensation laws. This has to do with the administration of such laws. No small part of the administrative problems connected with a compensation law comprises those which have to do with the determination, as a basis for awarding compensation, of the extent of the physical disabilities which injured workmen have suffered, and of prime importance in this determination is the information which the attending or examining physician or surgeon alone can supply. Particularly is this the case with the more serious injuries and disabilities. In a very real sense, therefore, the medical profession is called upon to perform an important administrative function under a compensation law in the furnishing of technical information as to the nature and extent of injuries for which compensation is to be awarded.

Examining more closely the relation of the medical profession to workmen's compensation in the first aspect above referred to, there is, of course, nothing new in the situation created under a workmen's compensation law by the mere requirement that injured employees shall be provided with medical or surgical attention. Such attention had to be given to injured workmen by the medical profession as well before as since compensation laws were enacted. But what is new in this matter is the requirement that the necessary treatment shall be provided by the employer instead of by the injured employee, this duty of the employer including the obligations both to see that such treatment is available and to pay for it. In this way there was virtually introduced between medical practitioner and patient a third party with a very substantial and active interest in each case, namely, the employer or in his stead, where he has insured himself against the liability to such expense, his compensation insurance carrier.

Out of this interjection of a third interest has grown not a little controversy and no little friction. The questions of free choice of physician, so-called "lifting" of cases, determination of fees, and fee schedules all arise out of it. It is not my purpose to go into these controversial questions in detail here. I desire rather to set forth certain fundamental facts and considerations which lie in the background of those concrete problems and in the light of which only can they be solved and differing interests be harmoniously adjusted.

First of all, it must be borne in mind that there is a sound reason for the presence of the employer (or his insurance carrier) in the situation. This is not merely the fact that the law has put him there, but rather the fact that the only way by which the cost of medical benefits, just like the cost of compensation, can be shifted to society generally is by laying it upon the employer whereby it becomes properly incorporated in the costs of production which go to make up the price of each commodity paid by the public as consumer. And where the insurance carrier takes the place of the employer in the matter, such carrier represents only

an expedient for distributing such costs over industry as a whole and, what is even more fundamental, for making certain that the injured employee shall not be deprived of the benefit by reason of the employer's inability to pay.

In the second place, there is from one point of view a natural opposition of interest as between employer or carrier and the medical practitioner in this necessary relation in which the compensation law places them. This clash of interests may develop in one or both of two ways, namely, through the exercise by the employer, or his insurance carrier, of control of what medical practitioner shall care for his employees when injured, and through the employer's (or carrier's) undertaking to scrutinize or limit the fees to be paid for the service rendered. Incidentally it may be observed in passing that the employer's activity in either of these directions may also run counter to the personal interest of the injured employee himself but that particular opposition of interest is not under consideration here. Also not now under discussion but important to note in passing is the fact that employer's and insurance carrier's interests may run in opposite directions on both the points above referred to as between employer and medical man.

Perhaps I should pause here, lest by any chance my meaning be not perfectly clear, long enough to remark that by the term "interests" as used above I refer to the interests of the employer or medical practitioner (or carrier or employee) as he sees them from his individual point of view.

Now the active interference of employer or insurance carrier with respect to choice of medical service or cost of same may be from motives that are entirely legitimate, quite aside from the fact that, as above noted, he is necessarily placed in a position to do so in the organization of the general scheme of workmen's compensation. Such a legitimate motive may be either a desire to see that medical service shall be competent and most effective, or an interest to see that such service shall not be unreasonable as to cost. Not only are such motives for interposition legitimate but as a matter of fact (and I say this with all due respect for the medical profession generally but also with appreciation of the fact that there is about the same general average of human nature in that calling as in any other) experience has shown that interference in pursuit of those aims is in some degree necessary, a statement which I dare say will hardly be controverted by any impartial observer with practical experience with the problem. This is not to say that interference growing out of considerations of cost, that is from the financial motive, so to speak, may not be unwarranted and harmful because that not only may be true but, again as proven by experience, has been more or less the case. The truth of the matter is that there has been error on both sides in the matter of cost interest, and trouble has grown out of undue desire for profit out of compensation medical practice on the one side and short-sighted pressure for cheapness on the other. The way out of such trouble must lie along the road of developing reasonableness on both sides by

clearer recognition of the normal interests of both parties, and by closer co-operation to establish reasonable practice and standards, which process in the last analysis can only be achieved by the slow method of education.

For the solution of the problem presented by employer's intervention in the interests of most effective treatment of the injured employee there is only one possible attitude which is tolerable, and this is that any individual interest which runs counter to the purpose of providing the injured employee with that service which will effect the promptest and most complete recovery has no right whatever to recognition. On this point, indeed, there can be no proper clash of interests. Medical man, employer, and insurance carrier, as well as injured employee, can have here only an identity of interest, and that interest must correspond with the fundamental purpose of the compensation law itself which it cannot be too frequently emphasized is to provide aid to injured employees not as a favor or charity but as a matter of justice and sound social policy. So far as the medical practitioner is concerned it is not to be supposed that any respectable member of the profession would allow his interest in best technical execution and maintenance of the finest traditions of his calling to be eclipsed by any commercial consideration. With respect to employer, insurance carrier and society at large it is to be noted that at this point economic self-interest presses in the same direction as interest in the welfare of employees because promptness and completeness of recovery from accidental injury affect not only the cost of medical benefits but what is a far heavier item of cost the amount of wage compensation itself. It is for this reason particularly that employers and insurance carriers have been more and more coming to the conviction as practical experience has demonstrated the truth to them, that cheapness in medical service does not spell true economy and that expenditure for medical benefits sufficient to provide the most effective treatment is the true road to economy in the cost of workmen's compensation as a whole. From this angle of the problem it will be seen that even the commercial interests of all parties come naturally into harmony.

There is a further point to be considered in this analysis of the fundamentals of medical care of injured employees under workmen's compensation which is closely related to the one just noted and has to do with a development within the medical profession itself and one which is identical with or closely related to that which is represented by the association here meeting. This is the development of practice specializing in compensation work. Such specialization may be either that of the plant or company physician or surgeon in which case industrial accident work constitutes a necessary part of industrial medicine in general or that of the physician or surgeon who has devoted himself to industrial accident work exclusively in so-called dressing stations or industrial clinics serving employers generally in a given community or locality. This development has aroused no little controversy within the ranks of the medical profession chiefly owing to the inevitably accompanying effect of centering accident work in the hands of a few members so specializing and

thereby attracting practice from others. This controversy, which in the last analysis is scarcely more than one of financial interest between different members of the profession, is not of vital importance. Furthermore it is not to be denied that such specialization has given rise to abuses by reason of an element of commercialization in connection with it, but this is by no means inevitable or inherent in it. The really decisive consideration with respect to this specialized accident practice is whether it is more effective from the point of view of better treatment and results for recovery of victims of accidents. To this question I believe that there can be but one answer. On general principles it would seem to be obvious that concentration upon a specialty, here as in any other profession, is bound to develop superior individual skill in that field, to which in this case there can be added the further superiority of better mechanical equipment and specialized apparatus for this particular kind of work. Specialization here is simply in line with the development which is characteristic of the times in all lines of work. Furthermore, I believe I state the case correctly when I say that among those who have studied the question impartially in actual practice there is general agreement that by the test of experience as well as theory the advantage of specialization in this field has been demonstrated. And looking ahead there is every reason to expect further development of specialized skill, apparatus and organization for such work.

There is one further element in compensation medical practice, often not sufficiently considered or emphasized, which requires to be noted to complete the picture. This is the fact that since the law makes the employer responsible for the medical care provided for his employees, the medical practitioner in such cases becomes a factor in the maintenance of satisfactory industrial relations between employer and employee. Here is a question of personal as distinguished from professional treatment. The employee's satisfaction or dissatisfaction with what his employer has provided may not turn much upon the degree of professional skill of the practitioner who treats him, but is bound to be affected by the latter's tact and attitude of sympathy or interest, or the contrary. I am well aware that under the best traditions of the profession this human touch could hardly be lacking in any case. Nevertheless, there have been examples of lapses from those traditions in this field and it is in order to note that there is here a double obligation calling for its maintenance, namely, professional etiquette and responsibility toward employer.

So much for that portion of the subject of medical practice in connection with workmen's compensation which relates to medical care of the injured employee. I turn now to the other branch of the subject which, as previously indicated, has to do with the function of the physician or surgeon in respect of information necessary for compensation law administration. It is literally true that the medical practitioner plays an indispensable rôle in the administration of workmen's compensation. Such administration consists very largely in determining for each industrial accident two questions, first, is the injured employee

entitled under the law to any compensation and second, how much is he entitled to? The rest of such administration consists in seeing that the injured employee receives his due amount of compensation promptly. Now how much the claimant is entitled to turns upon questions of the nature of the physical injury, the degree of recovery, the nature and extent of any remaining permanent injury and amount of impairment of physical function thereby entailed, and may also turn upon the physical condition of the wage earner prior to the accident. All these are medical or surgical questions for answer to which dependence must be placed upon the attending physician or surgeon or others called in to make special examination. There is solid reason in necessity, therefore, for the requiring of those reports from the medical practitioner treating injured employees which have not infrequently seemed to the latter an annoying or even unwarranted imposition and interference between practitioner and patient. This necessity has just been recognized by legislation. In an act generally amending the compensation law which was signed by the Governor on April 13, an amendment to the section relating to medical care of employees provides that in order to make his bill for services valid and enforceable a physician who has treated an injured employee must have filed with the employer and the Industrial Commissioner within twenty days after first treatment a report of the injury and treatment. This provision was not a hasty or ill-considered enactment but was a recommendation of a special committee appointed by the Industrial Commissioner to study medical questions in compensation law administration, which committee was representative of all parties interested in the subject including the medical profession.

This amendment bears the form of a penalty for failure to perform a duty. The notable thing about it, however, is the fact that it establishes by law for the first time the duty itself. It virtually calls upon the medical profession to recognize and accept the essential change in its situation under a compensation law. Properly conceived this duty of supplying information, now become compulsory, should be viewed as an opportunity for public service, even though, like all public service which the private citizen is called upon to perform, it may involve some personal inconvenience. It lies in the hands of the profession, by undertaking this duty in a spirit of cooperation rather than opposition or neglect, to greatly promote effective administration of the compensation law. Care to make reports complete, accurate, and impartial whether those in connection with treatment given or in connection with special examination, and whether in written report or verbal testimony, and promptness in supplying reports, are all that is necessary for effective performance of this essentially public duty.

Having outlined the principal features in the relationship of medical practice in general to the compensation law let me briefly suggest the particular significance of all this with respect to industrial medicine. I am not sure but that this may be a work of supererogation before an audience of industrial physicians and surgeons who know far more than

I about their particular branch of the profession, and who perforce are brought into close contact with compensation problems which naturally lie within their special field. However, it may be helpful to indicate how the matter appears from the angle of one specially interested in compensation administration.

Since the industrial physician is inevitably more closely associated with industrial accident work than the general practitioner it would not be illogical to characterize his situation in comparison with that of the latter as "the same, only more so," to speak colloquially. And that is in general true. The importance of recognition by the practitioner of the employer's fundamental interest in the care of injured employees, for example, offers no problem in the case of the industrial physician or surgeon. One of the distinguishing points of difference in the situation of the industrial physician as compared with the general practitioner lies in the much closer relationship between the practitioner and the employer or insurance carrier. In the case of the plant or company physician this relationship is closest since the physician then becomes an official of the employer. With the industrial physician furnishing general service to employers the relationship is less close as a matter of organization but tends to be close because of such practitioner's dependence upon the employer for business, and because of permanency of established relations. The industrial physician above all other practitioners concerned with compensation work, therefore, is to be depended upon to recognize the identity of interest of employer and employee in best treatment of the latter when injured, best, that is, both as to technical or professional quality and as to tactful and sympathetic personal treatment. Similarly, the value of specialized skill and apparatus scarcely requires argument with the industrial physician. He is the specialist in this field, this very fact being another point of distinction between him and the general practitioner. And on the evidence of past achievement he may be depended upon to take the lead in further improvements in technical practice. Likewise in the matter of records and reports the industrial physician has been in the van of progress by reason of the development of system in the matter required by the exigencies of his own work.

In short, any analysis of the situation as to medical practice under workmen's compensation cannot fail of the conclusion that before the industrial physician lies the chief opportunity, and hence obligation, to take the lead in progress along all lines in this field. As I have above indicated, the compensation law really presents to the medical profession a call to render what to a very considerable degree is of the nature of public service, and to no part of that profession is such call stronger than to the members of your Society.

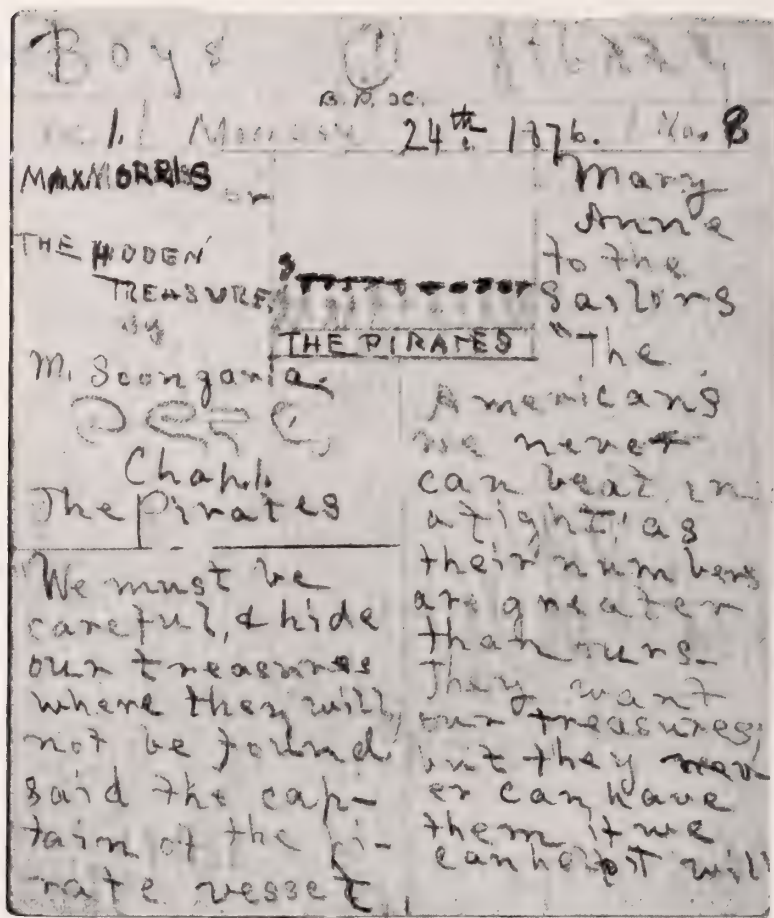


ALBANY MEDICAL ANNALS

A SKETCH OF THE LIFE OF JESSE MONTGOMERY
MOSHER, M.D.

By HENRY HUN

Dr. Jesse Montgomery Mosher, or J. Montgomery Mosher as he always signed his name, was born in Albany, N. Y., on October 12, 1864: the son of Dr. Jacob Simmons Mosher and Emma Starr Montgomery. Two of his uncles were also physicians. One, Dr. Frank Mosher, remained in the home-town of the family, Coeymans. He was a typical old-fashioned country doctor, who enjoyed whole-heartedly the work of a family and consultation practice in the village and neighboring country. He was an able, kindly man and his death was felt to be a great loss to the community, of which he was the beloved idol. The other uncle, Cornelius Duel Mosher, settled in Albany and was the physician and advisor of pretty much all the families in the South End of the city. He was a large, handsome man, a quiet, kindly, most courteous albeit somewhat eccentric, gentleman, devoted to literature and the drama at a time when the drama still existed in Albany. He was an omnivorous reader. His daughter, Clelia Duel Mosher, is a physician in active practice in Palo Alto, California. Her father, having no son, had her christened with a peculiar name: an abbreviation of his own. Why he did not call her Cornelia, the feminine of Cornelius, is an unsolved mystery. He was eccentric. Dr. Jacob S. Mosher for many years, in addition to his medical practice, was Registrar and Professor of Chemistry in the Albany Medical

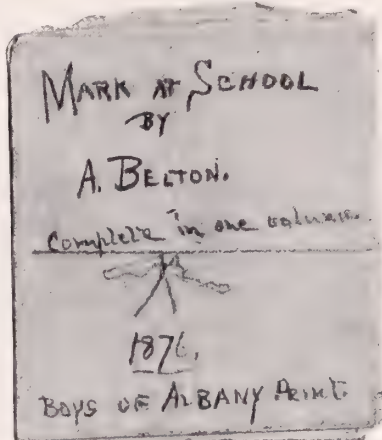


College and Professor of Chemistry and Experimental Philosophy in the Albany Academy. He was for a number of years Quarantine Officer of the Port of New York. He was something of a Bohemian and was the central figure among a large circle of friends. "Jake" Mosher was certainly a most interesting man of great charm and dry humor, and a lover of books.

Dr. Jacob Mosher's wife died when their children were very young: too early for her to have had much influence in the development of their characters. He was a man of such

varied interests outside of his profession and so many social demands pressed upon him and occupied his time that he was neither a money-maker, nor a money-saver and, consequently, on his untimely death, which, by the way, was very similar to that of his son, his family were left in a quite straitened financial condition. The entire care of her four young brothers and of herself now devolved upon the sister, Gertrude, a mere child herself, two years younger than Mont, and wonderfully well did she accomplish this difficult task. Possibly, her very youth brought her into closer sympathy with her little charges and they must have been very sweet tempered children to have yielded authority and obedience to one so young. Whatever the cause, the little sister-mother has had the satisfaction of seeing them all grow up; each one occupying an important and distinguished position in the world and leading beneficent lives. We, Mont's friends, have good cause to be grateful to this sister, who now, in the maturity of life, is raising her own little brood. Fortunate children are they.

The subject of this quite inadequate sketch exhibited from early childhood a distinct literary bent. During the year 1876 he printed by hand and illustrated a miniature monthly magazine entitled *Boys of Albany* (see illustration) which greatly interested and amused the little household. He also printed a number of miniature novels (see illustration). In the winter of the next year (1877), at the age of thirteen years, he injured his leg in "riding downhill" so severely that it caused an osteomyelitis which, after operation by Dr. Ward, left an open sore requiring daily dressing during the next dozen years. The leg was extremely painful for a long time. This prevented all exercise and even in



ant Editor. The mechanical execution of this magazine was not inferior to those of the present day and its subject matter not less interesting (see illustration).

In May, 1876, our little Editor-in-Chief entered the B class of the Preparatory Department of the Albany Academy. In spite of the handicap of his injured leg, he was able, later, to join the Cadet Battalion and even to be Sergeant of Co. A and finally Sergeant-Major. But his greatest success lay in literature. In 1880 he won the Principal's Prize for the best English Literary Essay and in 1882 he won, with an essay entitled "Washington Irving," the Gansevoort Literary Medal, the highest prize awarded in the Academy. He was a member of the Beck Literary Society. In the fall of 1882, being well prepared, he entered Union College, and, therefore, never completed the course in the Academy, and, consequently, never received its diploma. He graduated from Union in 1886. He was a member of the Psi Upsilon Fraternity and was Editor of its official publication *The Diamond* for several years. He was President of the Class of 1886, a member of the Graduate Council of Union College and Chairman of its Committee on Class Organization and for several years Alumni Trustee of the College. Of his college life, the writer has no personal knowledge. He does know, however, that of late years the class of 1886 has enlivened Commencement festivities by their quaint costumes and eccentric dances and actions, which were mainly the creations of Dr. Mosher.

He was a diligent student while in the Albany Medical College from which he graduated in 1889. His preceptor was Dr. Ward, a close friend of his father, and the title of his thesis was "General Paralysis of the Insane." From January to December, 1886, he was Apothecary at the Utica Insane Asylum; his college studies being carried on there and he, returning to Schenectady only to receive his degree, continued with his work at the Asylum and did not enter the Albany Medical College until January, 1887. Thus, his work in all three institutions of learning which he attended was condensed to the extreme degree of possibility. He was never afraid of hard work. While in the Medical College, the summers of 1887 and 1888 were spent at Willard Asylum,

where he found employment in the Apothecary Department. He found no time for a vacation. Upon graduation from the Albany Medical College, he went immediately to the Medical Staff of the Willard Asylum and within the year was appointed Second Assistant; the Superintendent at that time being Dr. P. M. Wise.

On March 12, 1890, he married Eleanor Bassett Chapin, the daughter of Dr. John Bassett Chapin, a distinguished alienist, the Superintendent at one time of Willard and, later, of the Pennsylvania Hospital for the Insane. This was a most rash proceeding, considering his youth and his financial condition, but justified a hundredfold by the wonderful helpmate he found to share his precarious future. More congenial and capable people never mated. Their home was a joy to all that entered it.

In October, 1890, he was appointed First Assistant Physician in the Ogdensburg Asylum by Dr. Wise, who had, in the meantime, been transferred there to build and establish the new State Hospital for the Insane. He remained at Ogdensburg for five years and there his son John and his daughter Eleanor were born. He then resigned on account of the unsettled and unfavorable conditions in the asylums throughout the State brought about by political interference and resolved to come to Albany and take up general practice here. His experience in practical medicine having been mainly obtained from the treatment of the insane, he determined to go to Europe and prepare himself for a general medical practice in all the branches of this art. Accordingly, accompanied by his wife, his son John and baby Eleanor, he crossed the sea and arrived at Vienna in November, 1895.

With his usual methodical habit, he kept a complete diary during his scant seven months in Europe, which gives his occupation for almost every hour of every day. No day was omitted. This record shows that his work embraced the whole field of medicine. During his three and one half months in Vienna, his work included: general medicine, obstetrics, genito-urinary disease, diseases of the nose and throat, surgery, nervous diseases and insanity, with occasional visits to the autopsy room. He seems to have given especial attention to Dr. Fröhen's clinics, Dr. Hochwart's

NAME

April 23, 1896

DATE

At 10 AM. called at St. Thomas' Hospital and attended Dr. Rayner at the Mental Out-patient department until noon. An interesting array of cases, several of whom had been benefited, and enabled to remain at home when the need of asylum care threatened. Dr. Rayner is quite satisfied that he has assisted many of this class, but does not insist that admission to an asylum would have been detrimental to all of them. He examines for physical conditions carefully, and refers the patients, whenever possible to specialists in other departments, hoping to "medicalize" insanity, and to call attention of other physicians to the medical features of insanity. His work is also largely advisory, in the matter of assisting patients to asylums, etc. He witnesses many patients whose cases have been previously treated by other practitioners and mismanaged, and he has found that the neurologists offend especially in this respect.

Interviewed the Matron and the instructor in the Nightingale Home, as to the training of nurses, etc.

Well spent the evening at Westminster Abbey, and after luncheon at the Grand Hotel, we spent the afternoon at the Tower, more especially in the Council Chamber and the Beaufort Tower. Home by boat from London Bridge to Westminster

course in electricity and electrical diagnosis and Dr. Schenk's laboratory course. In this diary he made a short note of each case seen and it further appears from it that he sent for publication at least four letters to the *New York Medical Record* criticising what he had seen in the clinics. He bought very few instruments. He seems to have worked hard and long and to have given little time to relaxation and pleasure: a rare visit to the opera and an occasional walk in the Prater "with Nell and John." The domestic baby carriage is spoken of, etc. He quotes in his diary one joke of Kraftt-Ebing, to-wit: "Causes of General Paresis of the Insane—Syphilization and Civilization"; which was rather a ghastly joke and, indeed, more of a truth than a joke. He was full of the joy of living and also of the joy of work.

At the end of February he went to Berlin and commenced his work there on March 2, 1896. In Berlin, a city which he seems to have preferred to the pleasure-seeking Vienna, he devoted himself, especially, to the practical study of obstetrics at the Maternity, to that of gynecology with Martin and to nervous diseases with Goldscheider. On March 27, 1896, he left Berlin and went to London, where he fully employed his time with the study of nervous diseases and insanity and attended a few lectures of Jonathan Hutchinson, whom he esteemed highly, as well he might, throughout his life. He occasionally visited an insane asylum and made a trip of a few days duration to Edinburgh, where he met Dr. Bramwell and saw a little of his methods of work and teaching. There is reproduced here a facsimile of a page of his diary, which shows his characteristic handwriting and also, very possibly, indicates the germination of an idea in his brain which later developed into his splendid conception and creation of Pavilion F (see illustration). He left London on May 14, 1896, and embarked for America where he arrived after a "pleasant voyage" of eleven days. He, then, after a short visit with his father-in-law, Dr. Chapin, at that time Superintendent of the Pennsylvania Hospital for the Insane, returned to Albany, located at 202 Lark St. and commenced the practice of medicine in June, 1896.

He was an excellent physician: careful, attentive, sympathetic and encouraging. He was much beloved by his

patients, steadily increasing in number. He had, however, so little faith in most drugs and was so reluctant to credit himself with cures which he thought might have been brought about by the natural recuperative powers of the body that he did not do himself justice, was, thus, a poor advertiser and he never became a popular fashionable physician. He was something better. He was an educator and inspirer of his professional brethren and, to a certain extent, of the public. He did this so quietly, so unostentatiously that it was not noted at the time, but shone out clearly in retrospect. From the start it was recognized that Dr. Mosher was too talented and of too versatile ability to be confined within the narrow limits of medical practice. His unusual literary ability was early seen. Within a few months after his return he was associated with Dr. MacFarlane as joint editor of the *ALBANY MEDICAL ANNALS*, which in his case proved to be a devoted service of a quarter of a century, terminating only with his death. In 1903 Dr. MacFarlane resigned the editorship and Dr. George Blumer was appointed in his place. In 1904 Dr. Blumer removed to California and Dr. Mosher became sole editor. Meanwhile, the *ANNALS* had increased greatly in size. In 1888 the volume for the year consisted of 350 pages; in 1904, its jubilee number, celebrating the twenty-fifth year of its birth, it consisted of over 800 pages. It ran along then at between 600 and 700 pages until 1907 when it reached its maximum of 1,000 pages. With this increase in bulk there went an even more marked improvement in its subject matter. It became a very creditable journal, rivaling some of those published in the large medical centers of the country. This improvement was due to the ability and hard work of its editor. Dr. Mosher was not only a rapid, facile and forceful writer; he was, also, consequent upon his early childhood training, a past-master in the mechanical art of printing. His correction of proof was wonderfully rapid, accurate and certain. His selection of type and his general "make-up" of the page and of the volume could rarely be improved upon. His taste in these matters was far better than that of the average, or even of the superior, printer. On one occasion while correcting proof, the printer standing at his side, he said: "That 'o'

is upside down." "Nonsense," said the printer, "an 'o' is the same whichever end is up." "It is upside down," said Mosher. "Well," said the printer, "I will look at the type themselves." He came back in a minute or two and said: "You are right, that 'o' is upside down but I don't see how you knew it." In the World War, the ANNALS, like many other things, deteriorated from want of financial and literary support, but whether it survives the death of its editor or not, it was, at one time, a credit and distinct asset to Albany and a benefit to the medical profession. Issued in Albany, it was a constant incentive for the local physicians to contribute to its pages. Some of these contributions were of distinct practical and scientific value, others added to the "gaiety of nations;" but all were of much value to those who wrote them. The ANNALS was a large part of Mosher's life. He was also for many years one of the editors of the *American Journal of Pyschiatry*.

Besides his work on the ANNALS and the *Journal* Dr. Mosher was early in demand as a teacher. Immediately after his return to Albany in 1896, he was appointed Instructor in Neurology in the Albany Medical College, in 1898 Dispensary Physician in the Department of Nervous Diseases of the Albany Hospital and in 1901 Attending Specialist in Mental Diseases in the Albany Hospital. All of these appointments included clinical teaching.

At about this time, or perhaps a little earlier, he commenced an active agitation for the realization of an idea which had long been maturing in his mind. This idea was: that it having been definitely established that insanity was not merely an aberration of the mind, but rather a symptom of disease of the brain, whether functional, toxic or organic; therefore, these unfortunate victims of disease should be so considered and so treated. They should be sent neither to the "Poor House," as was the custom in Albany in those days, nor to an Insane Asylum, which was so overcrowded and its medical staff so small that the individual patient could receive but little personal attention and treatment; but rather to a well-equipped, general hospital, where they could obtain treatment by the most modern methods.

The Doctor set himself to the very difficult task of making

this idea a reality. To accomplish this, he had first to persuade his medical colleagues, who knew little or nothing about the insane and had no desire to meet them intimately, that his scheme was practical. Next, the Governors were very unwilling to introduce such a bedlam into their new hospital and considered the insane, from their Biblical reading, as beings possessed by devils and, apparently, abandoned by God and, consequently, to be shunned by man. Finally, the County authorities had no wish to meddle with the insane, except to get rid of them, fearing them as being most dangerous persons in the community, as, indeed, some of them are. It required all Dr. Mosher's enthusiasm, intelligence and persuasive powers, each of which he possessed in a high degree, and mingled with the added grace of a quiet and amiable humor, to accomplish his beneficent plan; which plan, certainly, accords better with the ideas of a modern community than does the burning of these unfortunates, or drowning them from the "ducking-stool," or even confining them behind prison bars. He succeeded against all prophecy, expectation and, I may add, jealousy. In 1901, the County authorities built and furnished a suitable building, which is now far too small. The Governors of the hospital took over this plant and incorporated it into the general hospital organization, under the name of "Pavilion F," and appointed Dr. Mosher attending specialist to the Albany Hospital and placed him in full charge. In so doing, they established the first psychiatric ward in this or in any other country.

It is true that in Europe in a few State hospitals connected with a State medical school insane persons were admitted, under arrest, for observation and classification and, more especially, for teaching purposes; but these persons remained only a short time and then were sent to the asylums for real treatment, at which little or no attempt was made in the hospital. It was a dreary place with its iron bars everywhere in evidence. Dr. Mosher's plan was altogether different. In Pavilion F there were no signs of a prison, except light wire screens over the windows. Pictures were on the walls which the patients could easily break if they so willed and, rarely, they did so will. The rooms were prettily fur-

nished, except for a few "strong rooms" which were unfurnished and which were intended only for temporary occupation, at a time when the patient was far from able to appreciate his surroundings. No effort was spared that could make the ward home-like. All legal processes were dispensed with, as far as the law allowed. In many cases no commitment papers were required. Many patients entered voluntarily, as in any hospital. All patients could remain in "F" as long as a relative or friend or the city was willing to pay for them. Dr. Mosher's charge for attendance was in the majority of cases nothing, in the minority ridiculously small. His work was mainly a "labor of love." In February, 1902, the first patient was admitted. The success of this psychiatric ward was great from the start and has continued ever since; becoming greater with each year's experience in this novel experiment. It set a fashion which has attracted much attention and has been copied in this and in other lands. It must have been, and certainly was, a great joy to Dr. Mosher to see it grow and thrive beyond all expectation. At the outset of the scheme he stood alone. No one, but he, can claim much of any credit in its accomplishment and he with his habitual modesty never claimed it.

Every year Dr. Mosher issued a Report on the work carried on in "F," containing many observations and conclusions from this clinical study. More than twenty of these reports have been issued and they are full of valuable information. For a long time he had been collecting material for a large and comprehensive consideration of insanity. No one can complete this. It will ever be a great loss that he was not able to finish it. It would have been in great contrast to the numerous fantastic publications, attempting to explain and cure aberrant mental activity, which have issued in such a constant stream from the press in late years. Pavilion F was another large part of Dr. Mosher's life. It was his great, but far from his only, claim for fame.

In 1908, Dr. Mosher was made Clinical Professor of Insanity, Nervous Diseases and Electro-Therapeutics in the Albany Medical College: a position which he held until his death. This was the highest teaching position which he attained, although he well deserved a higher one. He was an

excellent teacher: quiet, clear, convincing. He put no barrier between himself and his pupils. They were to him his fellow seekers after knowledge. He did not frown upon, but welcomed, suggestions from them. In his presentation of a subject before his class or elsewhere, Dr. Mosher was not easily confused or diverted from his line of argument by ingeniously distracting questions. On this account he made an excellent witness before a jury. At one time he was much in demand as an expert witness both in Albany and in New York. No one could see more quickly than he the weakness of the adversary's case.

In addition to his professional positions he occupied important civic ones. He was a Trustee of the Albany Academy from 1906 until his death. For many years, he was chairman of the Committee on Military and Athletics and a member of the Publication Committee. He devoted much time and thought to the work of these committees and the recent catalogues of the Academy, so greatly superior to those of the past, are almost entirely his creations. In 1902 he was elected a Manager of the Albany Orphan Asylum and, in 1917, the President of its Board of Managers. His wisdom and industry have been of great value to that institution. He was Vestryman of St. Paul's Church and a warm friend and supporter of the Rector. In the deliberations of the Managing Boards of these various institutions, as well as those of the Medical Staff and Advisory Medical Board of the Albany Hospital, Dr. Mosher showed himself to be a wise, far-seeing man, never swayed by passion but guided by reason, a broad-minded, clear-headed man, always ready to stand up for what he believed to be right. He will be a great loss to each institution.

Dr. Mosher closed his beneficent life, painlessly but prematurely on December 7, 1922, leaving his wife, Eleanor Bassett (Chapin) Mosher; his son, John Chapin Mosher, b. June 2, 1892; and his daughters, Eleanor Montgomery Mosher, b. Feb. 3, 1895, married to Courteney Brandreth, and Emily Starr Mosher, b. Sept. 27, 1900, married to Frederick Passmore Gutelius. The story of his illness may be of interest to his medical friends. Ever since he was a young man he had a well-marked "annulus senilis" —a complete

ring, not merely an "arcus." In the summer of 1918, he had an illness, which may be best described in his own words in a letter to Dr. George Alder Blumer, his friend of long standing; a friendship which commenced in his student days in the Utica Asylum.

"We are all, I presume, somewhat fearful of the man who has his own case history to report and I have resolved to exercise proper caution in the infliction of my narrative upon my friends. In your particular case, however, I am placed under the necessity of giving a reason or an excuse for my apparent and unavoidable neglect. At about the hour the Albany postman presented your note at my office on June 15th, Dr. Sampson was messing around within my abdomen to discover the source of the distress to which I have been subjected at more or less regular intervals during the last five years and which had lately become so uncertain and importunate that I invited my good wife to accompany me to New York at our last very pleasant session that I might not spend the night alone in a hotel room. As might have been expected from a gentleman of my dramatic and more or less politician-like character, Dr. Sampson, Dr. Hun and Dr. Ordway, who all manifested an interest and affection, which seemed much beyond my merits, were treated to a surprise—to such an extent that Dr. Sampson was led to announce to me, some three days after, that I had no right, scientifically speaking, to be alive. I mention this, incidentally, as revealing the fact that, occasionally, there is an individual whose destinies are guided by a higher power than that of science (you may capitalize whichever word you will). There lay upon the surface of the liver and of the stomach some small hard nodules, which might have been many things but are probably malignant. The effects of this discovery were somewhat entertaining. At his visit the next morning Sampson black-guarded me like a longshoreman and resorted to the extraordinary use, for him, of profanity. Ordway said he had not slept all night; and Hun, most accomplished villain, smiling like the traditional scuttler of ships, baffled my closest scrutiny of his words and manner in my effort to discover any possibility of what I feared. When the laboratory report came in, to make my long story short, or not too long, the mysterious neoplasms were found to consist—of all things—food! There was a duodenal ulcer which perforated in November, 1916, discharged some intestinal contents into the peritoneum and the attack which suddenly prostrated me at that time, while I was making my hospital visit, was peritonitis. Maybe you can picture the sentiments of my friends during the interval between the discoveries of the operating room and those of the laboratory. I am bound to say that they gave no intimation of any plan to supply vacancies, which might be created, but manifested such cordial thankfulness that my work will be continued with them, that I am regarding all human nature with a softened vision. Then Sampson hooked up my jejunum with my greater curvature, made a new orifice and so a channel for the transmission of nourishment, which relieves the duodenum of its office. It

places a man at a little disadvantage in its possibilities of affording twice as much opportunity for the emptying of the stomach as for the filling of it, but I am attempting to meet this obligation with discretion."

During the past five or six years of his life, Dr. Mosher suffered from a number of ill-defined anginal attacks; long expected because of his old corneal degeneration. During the fall of 1922 he had been unusually happy and well. On the night between the 7th and 8th of December, he went to bed in especially buoyant spirits. After midnight he awoke with some precordial pain, quickly became comatose, and died a few minutes later. A necropsy was held the same morning by Dr. Jacobson with the result stated below.

"The most important condition demonstrated at Dr. Mosher's necropsy and what undoubtedly caused his sudden death, was found in his heart. The anterior descending branch of the left coronary artery about two centimeters below the auriculo-ventricular sulcus was almost occluded by an athero-sclerotic plaque about 2 cm. long and eccentrically placed so that only the minutest slit could be seen. No thrombus was found. The heart was of practically normal size, with slight hypertrophy of right ventricle and dilatation of right auricle. The valves were essentially normal. The myocardium of the left ventricle was considerably scarred and an area about 3 by 2 cm. along the left border just below the auriculo-ventricular groove was practically entirely replaced by fibrous tissue, very few muscle fibres remaining. This constitutes an old or healed infarct due to gradually progressive anemia, concomitant with the stenosis of the coronary artery mentioned. No acute myocardial degeneration could be found, even with the microscope.

"The splanchnic viscera showed acute congestion. No gastric cancer or ulcer was found. The gastro-jejunostomy must have functioned perfectly as the opening was about $2\frac{1}{2}$ cm. in diameter. A miliary white body beneath the liver capsule contains what appears to be vegetable fibres but I must give this more study. It seems something of this same nature was found in a piece of liver removed at the time of his gastro-jejunostomy."

From the above it appears that Dr. Mosher's death was due to a true angina pectoris; to a spasm of an already nearly obliterated coronary artery and not to a thrombotic plugging of the artery. The scars and infarct in the myocardium were remnants from the previous anginal attacks.

From this brief review of Dr. Mosher's life, it is apparent that it was a life of achievement and of the introduction of new ideas, and as we look back to his childhood we can see on what basis and on what elements it was founded. Like all men, his life was the result of his heredity and environ-

ment. Coming from a family of physicians and intimately associating in his early life with his father and uncles, it is not strange that he should have chosen the medical profession for his life work. From this same source of mixed heredity and environment he doubtless acquired his literary bent. This latter was still further fostered by the accident which crippled him for years. Instead of making him querulous and irritable it gave him a sympathy and charming tenderness for all that were sick and suffering. He was many times in great danger of injury or death in his struggles with wild maniacs in Pavilion F—for he was a brave man withal—and although hurt and wounded in the affray he was never angry and after the maniac was soothed and quieted his usual remark was: "Is it not terrible that disease should put a man in such a frightful mental state?" Never a sign of anger. This same sympathy which he had for the sick and afflicted was expressed in the motto which he chose for the title page of each number of the *MEDICAL ANNALS*: "Out of darkness bring forth light and out of suffering relief."

Finally, from his genial father, he inherited a most genial disposition. No one more than he enjoyed a social evening of relaxation with his friends. Of a small group of a dozen or more medical men, which existed under various names from the "Whist Club" to the "Aesculapian Club" during the past thirty years with combined scientific and social aims, he was in large part the animating spirit. His reports of medical cases were seasoned with a humor which was most charming and which will long linger in the memory of the members.

If I were to add a personal touch, which I have carefully refrained from doing hitherto, it would be to paraphrase a phrase of Marc Antony:

"He was my friend, faithful and true, and never ambitious save to do good."

ALBANY HOSPITAL

TWENTIETH REPORT OF PAVILION F, DEPARTMENT FOR MENTAL DISEASES, FOR THE YEAR ENDING JUNE 30, 1922

By J. MONTGOMERY MOSHER, M. D.,
Attending Specialist in Mental Diseases

To the Board of Governors:

I have the honor to present the twentieth report of Pavilion F, for the year ending June 30, 1922.

There remained in the Pavilion on July 1, 1921, twenty-five patients, twelve men and thirteen women. There have been admitted two hundred twenty-five men and one hundred sixty-one women. The whole number of patients under treatment was, therefore, four hundred eleven.

There have been discharged three hundred eighty-three patients—two hundred twenty-six men and one hundred fifty-seven women, and there remained in the Pavilion at the end of the fiscal year, eleven men and seventeen women.

The average daily number under treatment was twenty-eight. The number of beds is thirty-three. The highest number of patients at any one time was thirty-seven and the lowest, eighteen. The total number of days of treatment was ten thousand one hundred twenty-seven, making the average duration of residence twenty-five days.

The following tables show the forms of disease and the results of treatment for the year, and since the opening of the Pavilion:

TABLE I.—SHOWING THE FORMS OF DISEASE AND THE RESULTS OF TREATMENT FOR THE YEAR ENDING JUNE 30, 1922

FORM OF DISEASE	Recovered		Improved		Unimproved		Died		Remaining		Total		Total
	M	W	M	W	M	W	M	W	M	W	M	W	
Acute delirium.....	4	5		2		3	1	1		2	5	13	18
Confusional insanity..	2	3	8	8	15	8			4	4	29	23	52
Melancholia.....	2	2	9	9	4	9	2		1	4	18	24	42
Mania.....		2	2	4	3	9					5	15	20
Primary dementia....		1	5	4	13	5			2	1	20	11	31
Recurrent insanity....				2	2				1	1	3	3	6
Chr. delus. insanity...					5	5					5	5	10
General paralysis....					7	3	2				9	3	12
Terminal dementia....			5	2	22	16	4	4	1	2	32	24	56
Idiocy and imbecility			1		9	8					10	8	18
Alcoholic delirium....	5						1				6		6
Alcoholism.....			18	1	3						21	1	22
Drug addiction.....			8	3	2						8	5	13
Neurasthenia.....			7	5	5				1	1	13	6	19
Hypochondriasis.....			2		1						3		3
Epilepsy.....			6	2	2	1	1		2		9	5	14
Hysteria.....		2		3		1						6	6
Organic brain disease				1	5	1	4	1			9	3	12
Cerebral concussion..			1		1						2		2
Huntington's chorea..			2	1							2	1	3
Meningitis.....							1				1		1
Tuberculosis.....					2		1	1			3	1	4
Encephalitis.....				1		2					2	1	3
Cholecystitis.....							1				1		1
Locomotor ataxia....				1								1	1
Disease of stomach...				1								1	1
Nephritis.....			1	2			2				3	2	5
Carcinoma.....			2	1				2	1		3	3	6
Paralysis agitans....								1				1	1
Pernicious anemia....								1				1	1
Pneumonia.....	1	1					1	1			2	2	4
Myelitis.....						1						1	1
Exophthalmic goitre..				1								1	1
Multiple neuritis....							1				1		1
Oedema of the brain..	1										1		1
Organic heart disease..				1			2				2	1	3
No diagnosis.....											9	2	11
	15	16	77	55	99	72	26	12	11	17	237	174	411

TABLE II.—SHOWING THE FORMS OF DISEASE AND THE RESULTS OF TREATMENT SINCE THE OPENING OF THE PAVILION, FEBRUARY 18, 1902

FORM OF DISEASE	Recov- ered		Im- proved		Unim- proved		Died		Remain- ing		Total		Total
	M	W	M	W	M	W	M	W	M	W	M	W	
Acute delirium.....	68	76	28	42	11	31	21	28	..	2	128	179	307
Confusional insanity..	27	29	86	106	96	137	5	6	4	4	218	282	500
Melancholia....	40	64	101	208	109	206	10	19	1	4	261	501	762
Mania.....	14	28	24	59	66	98	1	..	..	..	105	185	290
Primary dementia....	13	12	70	52	125	76	2	..	2	1	212	141	353
Recurrent insanity....	1	..	23	32	24	36	..	..	1	1	49	69	118
Chr. delus. insanity...	..	..	5	9	90	92	..	1	..	..	95	102	197
General paralysis.....	..	..	22	2	145	27	10	..	..	..	177	29	206
Terminal dementia....	..	..	77	59	247	208	56	41	1	2	381	310	691
Idiocy and imbecility..	..	..	29	29	87	76	2	..	..	..	118	105	223
Alcoholic delirium....	345	22	51	9	6	4	48	2	..	..	450	37	487
Alcoholism.....	20	5	570	69	47	10	5	..	..	..	642	84	726
Drug addiction.....	19	13	83	68	20	11	4	5	..	..	126	97	223
Neurasthenia.....	5	2	50	41	15	18	..	..	1	1	71	62	133
Hysteria.....	4	21	5	66	1	15	..	..	..	..	10	102	112
Epilepsy and Eclampsia	1	1	50	20	38	20	2	1	..	2	91	44	135
Hypochondriasis.....	1	..	23	2	10	..	1	..	..	..	35	2	37
Chorea minor.....	2	3	1	3	2	1	..	..	..	..	5	7	12
Exophthalmic goitre..	..	..	..	2	..	1	..	..	..	..	..	3	3
Tic douloureux.....	..	..	..	1	..	..	..	..	..	..	..	1	1
Cerebral concussion...	10	3	7	..	2	..	..	..	..	..	19	3	22
Oedema of the brain..	1	..	..	..	1	..	1	..	..	..	3	..	3
Insolation.....	2	..	..	..	..	..	..	..	..	..	2	..	..
Organic brain disease..	..	..	21	13	43	12	34	16	..	..	98	41	139
Locomotor ataxia....	..	..	6	4	7	2	..	2	..	..	13	8	21
Myelitis.....	..	..	..	1	3	..	..	2	..	..	1	5	6
Multiple neuritis.....	..	..	1	..	..	1	1	..	..	..	2	1	3
Paralysis agitans.....	..	..	..	..	5	1	3	1	..	..	8	2	10
Huntington's chorea..	..	..	2	1	1	..	..	..	..	..	3	1	4
Meningitis.....	1	..	2	2	..	1	18	3	..	..	21	6	27
Encephalitis.....	..	..	2	2	..	..	3	..	..	..	5	2	7
Influenza.....	..	..	1	..	..	..	..	3	..	..	1	3	4
Tuberculosis.....	..	..	13	..	8	2	36	7	..	..	57	9	66
Pneumonia.....	11	1	..	..	..	..	28	7	..	..	39	8	47
Pleurisy.....	..	..	1	..	..	..	..	1	..	..	1	1	2
Typhoid fever.....	3	1	..	..	..	..	..	..	..	..	3	1	4
Erysipelas.....	1	..	..	..	..	..	..	..	..	..	1	..	1
Hydrophobia.....	..	..	..	..	..	..	1	..	..	..	1	..	1
Tetanus.....	..	..	..	..	..	..	1	..	..	..	1	..	1
Septicaemia.....	..	..	..	..	..	..	2	2	..	..	2	2	4
Heart disease.....	..	..	5	2	4	..	12	3	..	..	21	5	26
Nephritis.....	..	..	4	7	6	2	21	6	..	..	31	15	46
Disease of digestive tract...	4	1	2	1	..	..	4	3	..	..	6	9	15
Pernicious anemia....	..	..	..	1	1	..	..	3	..	..	1	4	5
Chlorosis.....	..	..	..	..	..	..	..	1	..	..	..	1	1
Arthritis deformans...	..	..	..	..	..	1	..	1	..	..	..	2	2
Multiple fibromatosis..	..	..	..	..	..	..	..	1	..	..	..	1	1
Aniline poisoning....	1	..	..	..	..	..	..	..	..	..	1	..	1
Ptomaine poisoning...	3	2	..	..	..	..	..	..	..	..	3	2	5
Fracture of skull.....	..	..	2	1	2	..	5	1	..	..	9	2	11
Carcinoma.....	..	..	2	2	3	..	..	4	1	..	6	6	12
Strangulated hernia...	..	..	..	..	..	..	1	..	..	..	1	..	1
Gangrene.....	..	..	..	..	..	..	1	..	..	..	1	..	1
Malingering.....	..	..	..	..	2	..	..	..	..	..	2	..	2
No diagnosis.....	..	..	..	..	..	..	..	..	..	..	54	31	85
	593	287	1368	916	1226	1092	339	170	11	17	3591	2513	6104



“That great mystery of TIME, were there no other: the illimitable, silent, never resting thing called Time, rolling, rushing on, swift, silent, like an all-embracing ocean-tide, on which we and all the Universe swim like exhalations, like apparitions which *are*, and then *are not*: this is forever literally a miracle.”

In the life of man twenty years is an age; of an institution it is a brief interval, long enough to determine whether it is a vital, permanent, necessary undertaking, or an adventure founded upon misconception or upon some emergency soon to be met and to vanish as new conditions, new thought and experience arise. Borrowing a custom from the clerical brethren it is permissible to create an anniversary at the expiration of such a period and in retrospect recall and emphasize the successes, touch lightly upon the faults, if there be any, and seek to derive from the past such principles as may guide the future.

Upon the spot where the Albany Hospital now stands, there stood, fifty years ago, another hospital, dedicated to the relief of disabled veterans of the Civil War. Long ago its beneficiaries were removed, its walls crumbled and fell. It had rendered its service and disappeared, to survive only as a memory or in the records of musty archives. During the same period and within a stone's throw of the abandoned and of the existing institution, across the avenue of majestic elms, then a country road, stood an Alms House building, in which were domiciled the insane. Popular sentiment was eventually aroused from its complacent conception of these unfortunates as paupers, and, in a sweeping reform, they were removed to better quarters and better care and placed under the scientific treatment provided by the State in its generous hospitals.

Now again, under different auspices, with a more enlightened conception, upon this spot dedicated for so

many years to the afflicted in body and mind, history repeats itself in a renewed effort to demonstrate the identity of mental and physical ills and to bring relief upon this scientific basis.

Of the twenty members of the Board of Governors of the Albany Hospital who accepted in 1902 the delicate and trying responsibility of a department for the observation and differentiation of mental cases, five remain in the Board: Dr. Henry Hun, Mr. Gustavus Michaelis, Mr. James McCredie, Mr. Robert C. Pruyn and Dr. Albert Vander Veer. Of the medical and surgical staff of that period five members remain in active service.

"The idea is the thing!" Through all the changes in men and institutions, the imperishable idea remains and gathers fresh vigor from its evolution as its results are unfolded and its broadening influence is felt. The skeptics who at first exclaimed, "What can be done for these people?" now cry, "Why is not this one cured?"

This horror of an insane person is a grievous popular aversion. To the uninformed or misinformed "they" and "these people" are grouped in one class of irretrievable outcasts to be segregated for the public good—alien from society. Sympathy may be expressed or felt but intelligent comprehension is not yet so broadly disseminated as to recognize in each victim an afflicted individual, with sentiments and passions and ideals and ambitions to be guarded and guided during a state of pathological perversion. All cannot recover, but it may be doubted whether a census of the residual defects of physical diseases and injuries would reveal a smaller number of permanent disabilities. The physical scar is local and moderately disabling; the mental scar is vital.

The idea represented by Pavilion F was that medical science had not had its opportunity in the treatment of mental afflictions. The abrupt incarceration of alleged insane patients on the order of a court smacked too much of criminal law and too little of therapeutics. It was proposed that the Albany Hospital as a general hospital should receive cases of mental disorder, offer them the resources of the institution, and thus seek to determine

whether there would not be a response to what seemed to be a logical method of procedure. There were difficulties and doubts and prejudices to be overcome. There was a good deal of talk about "deprivation of liberty," illegal confinement and the like. There appeared to be little opinion that a sick person possesses moral and social "rights" as well as legal: that many people mentally disordered are anxious for relief and competent to seek it. And there was a traditional and almost uncivilized restriction which withheld from the mental case the relief freely accorded the victim of physical disease or injury. The unconscious subject of accident might be admitted to the hospital and



his skull trephined or a limb amputated without so much as "by your leave;" the unconscious and delirious subject of pneumonia or typhoid fever might be bathed in ice water, strapped in a bed, deluged with drugs, without question as to the propriety of the ministrations, whereas the unconscious, bewildered and presumptively insane man was refused care unless ordered by a judicial officer. The plea, or the excuse, that a human life is at stake is of no less force in one case than in the other. When life is to be saved there can be no appeal from the promptitude and the discretion of the surgeon or the physician.

Fortunately for the patient the attitude of the court has been uniformly humane, sympathetic and liberal. The statutes are written for the protection and preservation of the life, the property and the welfare of the individual. The administration of the law has been based upon the higher interpretation of its phraseology and those who have placed their faith in scientific methods have been encouraged to persevere. These questions are not so burning now as they were twenty years ago. There has come about a general agreement that a declaration of insanity is too serious to be made without proper evidence: that several days or even weeks may be needed for obtaining this evidence; and it has further been determined that during this period of observation the patient may be restored to health, and the need of legal steps disappears.

Speaking for this community and this institution it may be proper to recapitulate the experience which has prompted these conclusions. From the work of twenty years may be expected some definite results, which not only justify the past but hold promise for the future.

In these twenty years six thousand one hundred four patients have been admitted to Pavilion F. Of this number three thousand one hundred sixty-four have been discharged to their homes as recovered or improved. These figures are important and may be discussed in greater detail. The crucial problem in each case is the prognosis: What is to be the outcome? Is restoration probable or possible? These questions involve the grouping of patients for differentiation of the curable from the incurable. Any classification of mental diseases is open to criticism, and all classifications are imperfect. Many minds, many years and much research have been spent upon the answer to these vital questions, with varying success, and the ingenuity of observers of symptoms has been forced to content itself with segregation of cases of structural brain disease. Phases of ancestral and personal history, analysis of the characteristics of the age epochs of life, have failed to offer an invariable principle. The result has been disappointing: perhaps the insoluble riddle of the universe is involved. So intricate are the factors entering into

personality that there may be fundamental reasons why this appeal to science strikes an impenetrable barrier. Little is known by himself or others of the characteristics of an individual, or of his reactions to the contacts of life. Something may be accomplished to protect or augment natural immunity against disaster: nothing can change the inherent quality or strength of the tissues against which an attack is made. Susceptibility or predisposition must be accepted as an underlying factor, for the same exciting causes or conditions act differently upon different individuals. This is as true of physical as of mental affections.



The virus of infectious diseases, as of influenza, pneumonia or typhoid has dissimilar effects in severity, character and results; many individuals exposed to these poisons escape; in some the morbid agent expends its force upon one tissue, in others upon another: when delirium or other mental symptoms supervene, a particular susceptibility of the nervous system is the explanation invoked. And so this defect or weakness is manifested whenever the organism is exposed to complications or situations beyond its power of adjustment. The demonstrations of the defect are dissimilar in different individuals. Blows upon the head, fevers,

mental shocks, or any other disorganizing factor produce symptoms not in accord with the specific nature of the injury, but rather in accord with the personal reaction of the nervous system to damage, no matter what its form. In so-called mental cases, then, the attempt is rather to ascertain what the native strength of the victim may be, than to predicate the course of his disease by its active manifestations. Such inquiries are not without their difficulties. Concealment of family and individual weaknesses is instinctive, to some extent excusable and often unwitting. But if the careers of the patients are submitted to an inquisitive or inquisitorial examiner, some plain facts may be elicited.

Acknowledging its imperfections, a classification of some sort must be adopted for study and for discussion, and the tables used since the opening of the Pavilion have been made with the purpose of differentiating those patients whose history seemed to justify reasonable expectation of recovery from those whose attacks appeared less promising. The distinction is based largely upon the relative abruptness of the onset: the presence of some persistent exciting cause which would justify a breakdown in a person of average good health and substance. This group of patients has been included under the titles of delirium, confusion, melancholia, mania and stupor, or primary dementia. There have been two thousand two hundred twelve cases in this group, of whom one thousand one hundred forty-seven have been restored. Eventual restoration has followed in many who have withdrawn prematurely from the hospital, and there have been undoubted recidivations in some who have left, but the average is reasonably correct, and may be accepted as the index of probability. These cases really determine the function of the hospital. They are acutely sick, the principle of treatment is such as a general hospital can provide—rest and recuperative measures—and there is little excuse for designating such patients as insane, at any rate, until incurability is established. In the unfavorable cases it becomes apparent that the initial attack, though taking the form of an acute and transient disease, is in reality the incipient phase of a

permanent mental degeneration, and the distinction cannot be made until time reveals the unpleasant truth.

Some interesting statistical information has been derived from observation of the alcoholics and drug addicts. The totals are not large enough for conclusions but there was a marked increase in admissions during the war period and shortly thereafter, with a rapid decline following the mandatory laws. It is not believed that these figures are reliable with reference to the abuse of drugs, as the ill-advised and emotional onslaught upon drug addicts had little in justification—the best result was the knowledge that hospital or ambulatory or any other treatment is of only temporary effect. Narcotic and stimulating drugs are the resource of the depraved and will be abused until the supply is stopped.

The following table shows the admissions of alcohol and drug habitués since the opening of the Pavilion:

		Alcoholism	Drug Addiction
1902	1st year.....	50	4
1903	2nd year.....	39	0
1904	3rd year.....	56	2
1905	4th year.....	52	8
1906	5th year (19 months).....	96	13
1907	6th year.....	52	4
1908	7th year.....	38	0
1909	8th year.....	62	3
1910	9th year.....	76	4
1911	10th year.....	61	8
1912	11th year.....	75	6
1913	12th year.....	88	24
1914	13th year.....	84	29
1915	14th year.....	105	34
1916	15th year.....	113	20
1917	16th year.....	56	15
1918	17th year (9 months).....	50	16
1919	18th year.....	23	13
1920	19th year.....	38	16
1921	20th year.....	28	13

Time was, within the memory of man now living, when two more or less antagonistic schools of treatment of the sick waged their contest and marshalled their champions. There were the physicians of the pharmacopoeia with unbounded faith in their Galenicals, and there were the more humble who extolled the forces of nature and awaited patiently

its recuperative resources. And as the schism became defined "expectant" treatment on the one hand challenged the "shot-gun" prescription on the other. This latter conglomeration of drastic drugs was in some measure a confession of inaccuracy of diagnosis, and the administration of a bolus of nauseating specifics was charged with the duty of selecting the organ diseased and working thereupon its beneficent and curative mission. The ingenuous advocates of this empirical practice were evidently indifferent to the strength they gave the argument of their opponents in thus impressing upon the *vis medicatrix naturae* the double duty of resisting not only the disease but the treatment.

Perhaps the lesson has not yet been thoroughly learned, though the principle that, apart from surgery, medicine nowadays concerns itself more with the general constitutional condition than with the local affection, has gained force. The attempted relief of symptoms without regard for their origin is often the cause of bewildering and confusing complications. Fever may be reduced by drugs, which at the same time cause critical relapse; sleep may be produced by drugs, and the patient made delirious. Upon observance of these truths and avoidance of these errors hangs the hope of psychiatry. To the uninitiated the restoration of the disordered mind is an impossible feat. They are right in so far as they conceive an intangible function, but whatever the mind may be, the expression of its activities is only to be had through the medium of a physical organ. Physical health when lost may be restored, and with it the normal mental reactions. Of course, this is no new theory. One refrains from citation of the classical epigram because of its triteness. But a Bunsby is needed to remind constantly that "the bearings of this observation lays in the application on it," for the application is too infrequent.

Captain Clutterbuck relieved the tedium of his retirement to anticipated ease by applying himself to the pursuits of an antiquary, and found that he "lost all sense and consciousness of certain unpleasant sensations of a



nondescript nature about his head and stomach, to which he had been in the habit of attending, more for the pure want of something else to think about."

No less significant was the cry of the allegorical Christian for "carnal physic for a sick soul:"

"Dear wife, said he, and you the children of my bowels, I, your dear friend, am in myself undone by reason of a burden that lieth hard upon me: moreover I am for certain informed that this our city will be burned with fire from heaven, in which fearful overthrow both myself, with thee, my wife, and you my sweet babes, shall miserably come to ruin, except (the which yet I see not) some way of escape can be found, whereby we may be delivered. At this his relations were sore amazed: not for that they believed that what he had said to them was true, but because they thought that some frenzy distemper had got into his head; therefore, it drawing toward night, and they hoping that sleep might settle his brains, with all haste they got him to bed. But the night was as troublesome to him as the day; wherefore, instead of sleeping, he spent it in sighs and tears. So when the morning was come, they would know how he did. He told them, Worse and worse. He also set to talking to them again: but they began to be hardened. They also thought to drive away his distemper by harsh and surly carriages to him; sometimes they would deride, sometimes they would chide, and sometimes they would quite neglect him. Wherefore he began to retire himself to his chamber, to pray for and pity them, and also to console his own misery: he would also walk solitarily in the fields, sometimes reading and sometimes praying: and thus for some days he spent his time."

Bunyan's rhapsody plainly passed into the morbid, for so vivid and accurate description can be attributed to no other than personal experience.

That he had been "for certain informed" is presumptive evidence of a vision or oral communication from on High, a common demonstration of an hallucination of the special senses. The distress of his "relations" and their attempts to counteract his obsession by derision, by chiding and by neglect, served only to intensify his misery and strengthen

his delusion of the impending ruin of all. Their ill-advised efforts resulted in separation and isolation, as he sought comfort after his own manner, and after the manner of all afflicted as was he. As true today as two hundred and fifty years ago!

And afterward, when he recorded the experience, he uttered his cry for the one relief needed and not given: "carnal physic."

The patient who sees in his attendant only a distorted image of evil, who hears from the walls of his room threats and oburgations, who tastes poisons in his food, and is oppressed by the very air he breathes, finds little reassurance in arguments which would discredit the evidences of his senses. And these sensory structures may not convey and register normal impressions when disarranged by disease. Herein lies the problem— not essentially different, unless in its complexity, from any other problem in pathology, to build up the body, to restore perverted function, to avoid irritation by discussion, protestation and contradiction, to arrange a quiet and pleasant environment— that is, to promote normal processes by intelligent and discriminating expectancy. Much is expected and much gained from the mysterious recuperative force of nature. Hunger, though fortified by deadly fear, may not withstand the repeated presentation of tempting and delectable viands; suspicion yields to the gradual acquaintance with an affable and unofficial nurse; sleep eventually conquers the enforced vigil; and these agents of peace and health and encouragement are the resources of the hospital.

The history of medicine is the history of empiricism. Drugs, diet, heat and cold, electricity, massage, rest, exercise, climate, moist air, dry air, cold air, hot air, steam, surgery, isolation, diversion, occupation, hydrotherapy, psychotherapy, hypnotism, suggestion and prayer, all have their advocates. Unfortunate is the invalid who accepts any one as a panacea. Much safer is he when all the resources of healing are at command and when any or all or none may be used for his benefit.

The third decade of the Pavilion opens under peculiarly favorable auspices. The superintendent, Mr. Rockefeller,

reveals full comprehension of the niceties which make life pleasant. Under his administration the wards have been attractively decorated and refurnished, and the rules as to cleanliness and order which bespeak the hygienic sanctity of a large institution have been faithfully observed. Not the least patent effect of the spirit of good-will and co-operation have been the friendly attitude of patients and the freedom from restraint. The attractive lawns and groves about the buildings have been utilized in suitable weather, and on occasions during the summer all of the patients have been out of doors.



The operating rooms, the X-ray department, the laboratories, the numerous specialists of the attending staff of physicians and surgeons, have all been marshalled into this service and have responded with good-will and enthusiasm.

Reiteration may be tedious but excusable, when, used by way of conclusion and emphasis, it is stated again that the genesis of mental disorders rests in the body, and that as years pass and experience accumulates, the need of the patient for what the hospital can give is more obvious.

Twenty years of active work have established the truth that a hospital which deals with physical ills finds no small part of its function in the correction of mental disorders.

DISCHARGES

Of the three hundred eighty-three patients discharged, thirty-one recovered and one hundred thirty-two were improved. The percentage of cases distinctly benefited was forty-three. Since the opening of the Pavilion the percentage of cases discharged as recovered and improved has been fifty-two. One hundred seventy-one patients were discharged unimproved and thirty-eight died. The causes of death were: pneumonia, six; diabetes, one; exhaustion, one; debility of old age, two; railway accident, one; meningitis, two; general paralysis, one; decubitus, one; heart disease, three; cholecystitis, one; cirrhosis of liver, one; status epilepticus, one; organic brain disease, six; tuberculosis, two; encephalitis, two; nephritis, two; carcinoma, two; pernicious anemia, one; multiple neuritis, one; suicide, one.

ACKNOWLEDGMENT

The relations of the Hospital with the public officials of the city and county continue to be most cordial. Commissioner Doody of the Department of Charities has carried on the special work in mental cases which devolves upon him after the considerate manner of his predecessors. This special duty has been in the hands of the Deputy, Mr. William H. Erwin, for twenty years, and too much praise cannot be given to the painstaking manner in which he has investigated the manifold problems involved. His inquiries into the social, domestic, economic and personal relations of individual patients have thrown much light upon situations otherwise beyond analysis. It is believed now that every angle is studied and it is difficult to see how a better system or more cautious procedure could be established.

Praise of the nurses has become an annual formula. The training upon the wards of Pavilion F is an unquestionable refinement of the curriculum of the training school and evidences are abundant that it is appreciated by the pupils. In return for this special instruction, afforded by few hospitals and needed in all, the enthusiasm of youthful seekers for knowledge creates an energy which in no small degree compensates for lack of experience. The direction

of this energy into proper and effective channels remains in the capable executive control of Miss Margaret Flanagan, nurse in charge, who is particularly gifted by nature for the work she has chosen. And an additional sense of security is given by the efficient co-operation of Miss Gretchen Loughlin who presides over the destinies of the Pavilion in the still watches of the night.

Among the special gifts of the year which are acknowledged with gratitude were: flowers from the Albany Orphan Asylum, Mr. William H. Erwin, Mrs. F. P. Gutelius, Jr., Mrs. John D. Whish and Mrs. Alden Hotaling; seven framed pictures from Mr. Harry Simmons; magazines from Mrs. Wm. M. Gilbert and from Dr. and Mrs. L. J. Early; books from Miss Gladys Taylor. The choir of St. Paul's Church on Christmas Eve sang the appropriate carols under the direction of the Reverend Roelif H. Brooks and Choirmaster Candlyn. The holiday season was also recognized by the Associated Charities Organization of the city who presented twenty dollars to be expended for decorations, candy and games.



APPRECIATION OF AN INTIMATE

By C. M. CULVER

It is fair to say at the outset that the estimate of Dr. Mosher's life, about to be made, here, is not a matter of mere heartless biography.

It is rather the tribute of one who has been on terms of close friendship with him since his boyhood, and by whom his memory is fondly cherished.

Sterling integrity and keen intelligence characterized his parents, hence heredity alone might have sufficed to provide his possession of these qualities of heart and mind. He certainly possessed them in notably high degree.

Fidelity to family and friends was a marked trait in his character, and it won for him the love and esteem of those who knew him well.

Simplicity was innate in him, perfectly natural, not the result of reasoning or moral reflection, although his liberal mind may have strengthened it. It is because of it that fulsome praise of him, however much we may feel that he deserves it, would sound a discordant note.

From his boyhood he was a living example of malice toward none and charity for all.

He was a sophomore in Union College when his father died. Not sure of the status of his family's estate, he thereafter paid his way through college by service which included the ringing of the chapel bell. The sound of this bell also announced the close of recitation hours. Although only one man in his class received higher marks than he—marks intended to show the relative merits of students, as students—young Mosher, after his father's death, acted as the agent for a friend, in a purely commercial capacity. This was also with the purpose of contributing to his own support. Such outside occupation naturally lessened the time he could devote to study, yet his high rank was maintained as long as he stayed in college. His heroism was further shown by his leaving college, for the sake of earning a competence, before the end of his regular course. While thus making sure that his orphaned sister and brothers were not needing to contribute to his support, he was also forfeiting an award

of membership in Phi Beta Kappa, to which he was certain to be elected if he remained in college till the end of his senior year.

While acting as salesman, he sought to sell some of his wares to Dr. Franklin Townsend. The munificence of the order which he received from that noble man aroused the suspicion of the young agent that it was for more than was needed; this led him to ask if the large amount of the proposed purchase were not partly due to the fact that he was Dr. Mosher's son. When Dr. Townsend admitted that that was true, the young man said: "Please don't order more than you need, Dr. Townsend. I think that what I am trying to sell you is worth its price, to anyone who needs it. But I would rather not have you make a bad bargain for the sake of helping me."

Skilled discrimination proves the possession of a kind of ability whose value can hardly be over-estimated. The subject of this memorial practiced that habitually. In a Massachusetts court a plaintiff was suing a street railway corporation for injury suffered in an accident. She held that, because of that injury, she was unable to use one of her arms. In order that he might serve as an expert witness in the case, Dr. Mosher examined the plaintiff. He found that the arm in question was competent to perform its function; that the real lesion was a mental one, consisting in the owner of the arm thinking that she couldn't use it. At the outset of the cross-examination he was asked what was the first advice that he gave to patients who had suffered similar injuries. His prompt reply was: "To avoid lawyers." Everybody who heard this answer—including the cross-examiner himself—laughed heartily. When quiet had been restored, the attorney continued, saying: "Without joking, Doctor, what *is* the first advice that you give, in such cases?" To which the witness again promptly replied: "I haven't been joking. The answer I gave is the right one. Whatever injury may have been caused by the accident, a prospect of litigation often leads to incorrect assumptions, as to the extent of the victim's hurt, and these to morbid delusions."

To distinguish well between what is real and the merely seeming is, of course, generally accepted as a mark of good

judgment, and moral rightness is naturally proved by a preference for the former. During the last two days of his life Dr. Mosher told of having just received a letter that concerned affairs of the academic department of the university and which rather implied reproof. He said it must have "crossed" a letter that he had mailed the day before, in which the sentiments expressed were quite the opposite of rebuke. He added: "I may have offended him at the last meeting of our council when I said, about a report of percentages deduced from tables: 'The conclusions are mistaken ones, a result of having considered the figures and not the facts.' "

That ability to distinguish keenly between values and prices was a precious item of his mental equipment.

He was sometimes called a therapeutic nihilist. His attitude toward drugs was practically identical with that of those great physicians among whom Willard Parker, Joseph Pancoast and Joseph Price were prominent. He did not despise drugs but opposed the indiscriminate use of them. Skillful employment of them he practiced.

When Dr. Pilgrim was his only superior on the medical staff of the State Hospital at Willard, an inmate had been in a state of coma for a relatively long time. Dr. Mosher injected into the patient's circulation a seemingly small but sufficient dose of the proper stimulant; consciousness was soon restored. The patient was then quietly told that if he would give the names of those to whom he would like to communicate his wishes concerning the disposition to be made of his property, such persons would be summoned to his bedside; that he would then be re-awakened, if they should come soon enough, in order that he might confer with them. This plan was followed and all of it realized. The case certainly implies the skillful use of one drug.

At another time one of the ablest physicians in Albany, Dr. O. D. Ball, had had a patient brought to Pavilion F, of the Albany Hospital, where he and Dr. Mosher were in consultation about the case. The latter had said no word of objection to the use of drugs, hence it must have been his reputation which led Dr. Ball to say: "Now, Dr. Mosher, you must admit that certain drugs do have a sedative influence in such cases."

Dr. Mosher: "Why, it's your patient, not mine; she shall have whatever you prescribe."

Accordingly, hyoscyamine was ordered. The next morning the same doctors were at the same place and Dr. Ball called attention to the evident improvement in the patient's condition, she being much quieter than she had been the day before. He repeated his commendation of sedative drugs and must have been disappointed when the nurse said: "There was no hyoscyamine in the dispensary, Dr. Ball, but some was sent for at once; it hasn't come yet, so she hasn't had any."

It was that same able practitioner and another of like renown who stood at the door of the coat-room of the Albany Hospital one morning when Dr. Mosher entered. As he approached them, one of them pleasantly spoke of his so-called therapeutic nihilism. He answered: "When you gentlemen agree as to what drugs do and as to the best way of using them, I may help you more in the matter of prescribing them." One of them retorted: "But you can hardly deny that scruple doses of quinine help to abate intermittent fever." Whereupon the other doctor asked. "Do you use as large doses as that? I don't." And Dr. Mosher repeated his remark: "When you gentlemen agree * * *"

As helping to fortify his attitude in respect to drugs, it seems fair to cite a conversation between his father and Dr. Thomas Hun; the former said: "I'm getting so that I practice medicine without using anything but calomel and opium." To which Dr. Hun replied: "Your'e doing very well, so far as you have gone. When you get where I am you'll drop the opium."

An agent for a drug firm once called on Dr. "Mont," with the purpose of introducing some more infallible remedies. Mont said: "I'll be good to you and save time by saying that I don't use those things."

Agent: "Of course you don't use *these* things, as I am just introducing them to the profession."

Dr. Mosher: "It will be more to the point, then, if I say that I don't use that sort of thing."

Agent (knowing that his next move, if he were to follow the firm's directions, was to be sarcastic): "Oh, indeed! What *do* you use, then?"

Dr. Mosher: "In ordinary cases I use lemon juice; in extraordinary cases I use orange juice."

One of his patients said to him, as if reproachfully: "I've been under your care for several weeks and you haven't given me any 'medicines' at all!" Mont answered: "Is that so? I must have forgotten it; you've been getting better, though, haven't you?"

Patient: "Why, yes, I've been getting better all the time, but I haven't taken anything——"

Doctor: "Except systematic exercise. Which do you prefer—taking drugs or getting better?"

Improvement of health was the sole aim of his professional work: a determined effort to achieve such improvement was a *sine qua non* of all his clinical activity; this was so evident to competent observers of his life that it is, after all, supererogation to declare the fact.

So far from claiming anything like infallibility for himself, he rather ran the risk of erring in the opposite direction. This might be abundantly and conclusively illustrated from actual cases. One valid reason for omitting such proof, here, is that the conclusion might easily be mistaken, perhaps especially by laymen.

Administrative competence was shown in his work in several capacities. He and a friend sat on the lawn of the Willard State Hospital, the fourth of July, 1890, when a nurse came and reported that: "The attendants say they won't take the patients out to play ball." His answer was: "They will either do that or leave the place"—and the ball game was superintended by the attendants, just as it had been arranged that they should.

On a corridor of the same hospital he once saw an attendant brandishing a broom, as if to threaten a patient. The attendant was immediately dismissed; he pleaded that it was only as a joke that he had pretended to threaten the patient but this plea was unavailing; he was told that *any* suggestion, however slight, of violence to a patient broke the rules of the institution; he had to go.

On another occasion Dr. Mosher, at three o'clock in the morning, found two male attendants sitting in a corridor at a table on which were empty beer bottles. Six hours later

the men had been dismissed and had left the hospital grounds. When such delinquents pleaded the slight degree or minor quality of their offences, Dr. Mosher told them that it was the *breaking* of rules, not the amount of the breach, that made punishment inevitable.

At Ogdensburg he and I were once going through the hospital wards when a gentle, old, ladylike inmate persistently appealed to me to get Dr. Mosher away from there, lest somebody should kill him. After visiting, in an adjoining room, a patient whom Dr. Mosher was treating for a pulmonary affection, we came out on the ward again. At quite a distance from us, the old lady in question seemed to start to come toward us as soon as she saw us. A nurse gently grasped her sleeve and quietly prevented her coming near us. This was not mentioned to Dr. Mosher and I did not suppose he had been aware of it. Hence my surprise at his saying to the nurse, when we happened to be near her: "I noticed that you restrained Mrs. Graham a little while ago. Please remember that patients are not to be restrained *at all*."

A few days later I stood on the quadrangle of the hospital holding my child in my arms; the only other person within fifty yards of us was an able bodied, male inmate who was quite at liberty. Six months earlier he had been in practically constant confinement; in the meantime he had come under Dr. Mosher's care, had been relatively freed from control and had so improved in health as not to need restraint.

When that hospital was being visited officially, on one occasion, by one of its board of managers, Dr. Mosher was his companion for the tour of inspection. In one of the principal wards a woman-inmate rushed in front of them and assailed the doctor with the most vehement abuse—accusing him of the extremest misdemeanors. He gazed quietly at her and did nothing that might hinder her. Her fury gradually abated, she finally retracted all her accusations and apologized for having made them. When at length she slunk away, as if ashamed, the visiting manager expressed surprise that the doctor should not have prevented a continuance of the tirade. The doctor calmly answered that it

had all been purely symptomatic of her malady and that he had thought it might be well for the visitor to witness such an attack or seizure, unaffected, as far as might be, by intended influence from without. When asked if he had known in advance that retraction would follow the accusation, he replied that that could not be foreseen; that the form of the seizures' symptoms varied, but that he had wanted the manager to witness such an attack, regarded merely as an interesting phenomenon, with a possible bearing on his official function.

A patient in the State Hospital at Willard had developed pleuritis. Dr. Mosher operated and removed the serum from the sac. The patient recovered his health as to both lungs and brain. He was told that he might leave the hospital but, at his own urgent request, was permitted to remain as a servant. His gratitude to Dr. Mosher was extreme and was the reason for the cured man wanting to remain where he was. The doctor said to him: "You think I have done so much for you, now you can do something for me, by telling how you got well." The ex-patient diffidently answered: "Well, I had what you called delusions, wrong notions of things. Then when my lungs got sick I wasn't interested in anything else on earth but getting breath—and when you operated and I could breathe, I stayed by that and didn't go back to the other things." The doctor said that that was about as fair a statement of the process of recovering mental health as anybody had made.

Years later, in Albany, he was calling at the home of an intimate friend. It was not a professional visit since the lady to whom it was paid had, thanks to his careful attention, just regained her health. She asked him to tell what had really ailed her. His answer was: "Now here's Cully, ready to blame me, just as Dr. Hun does, for confessing that there's anything I don't know—but, the fact is, I don't know." The fact was that, though an exact diagnosis had been practically impossible, her ailment would probably have become a serious gastric disorder if he had not treated her skillfully.

Talent as the director of the affairs of a group is a phase of administrative ability that he possessed in abundance and used generously. As president of his academic class he

admirably proved this. The Waldron Cup is awarded annually to the class the largest percentage of whose surviving members appears in the procession of the alumni on Class Day and the *ensemble* of whose appearance and deportment is most excellent. When Dr. Mosher's class celebrated the thirtieth anniversary of its graduation, as it did in 1916, the award of the cup to that class was applauded by rival classes, was merited and was practically easy to foresee. Not only had the requirements as to percentage of attendants been fully satisfied but every member of '86 wore a splendidly ornamental Mandarin's costume. These suits had been obtained in China by the president's brother, Gouv, who was then a missionary in that country. The assembly of these men, some from far distant states, necessitated the use of gifts that detectives are glad to possess. Their garb contrasted notably with that of some of the other classes, whose costumes were not intended to be ornamental but rather absurd. Indeed, if any other class in that kind of a procession has been as gorgeously arrayed as the '86 men were, that day, I have not had the good fortune to see them. The next issue of *Union's Alumni Monthly*, after that celebration, was exclusively devoted to the '86 part of it; that issue was much larger than the usual one and contained, besides a remarkably excellent class history and some very praiseworthy verse by the official class poet, a poem of no slight merit written by the president himself.

His ability as a writer was of surpassing excellence. Of keen intelligence, from birth, his mind was diligently trained. Educated and skilled in the classics, he had also bright ideas in profusion. His knowledge of word values was remarkable. In view of these facts, it is not surprising that, even for years before he became one of the editors of the *American Journal of Insanity* (now the *American Journal of Psychiatry*) he wrote and reviewed more for that periodical than did any single member of its editorial board. It is rare to find combined in one person so many of those qualifications for fine writing as he possessed. He read extensively and critically. His styles were varied to meet the requirements of his various themes. Especially for those who can supply the names that are not given in his article in the April, 1921, issue of the

Union College Alumni Monthly, there is to be found in it a literary treat. Its title is *Iter e tertio ad domum* and the *nom de plume* used is Alexander Field, A. B. However versatile as an author, he wrote nothing that smacked of sleight of hand. Readers of the ALBANY MEDICAL ANNALS during the quarter century when he was its editor in chief, know that his editorials, reports and articles invariably contained ample food and occasion for thought.

Besides the several important official positions that he occupied, such as the presidency of the Albany Orphan Asylum and a trusteeship of Union College, he was offered appointments or election to other, similar ones. These he declined because he thought that the responsibility that was already his was as great as he could properly assume. His exemplary character and rich mental and spiritual endowments made him the natural choice of discriminating electors for places of authority. While he was far from desiring to parade his excellence of any kind, his religious attitude might well serve as a pattern for most of us. He was an efficient officer of his church and—what was quite as important—he put the highest premium on humanity, which, in the last analysis, is the essence of religion, and this he practiced.

His splendidly efficient intellect enabled him to appreciate many phases of that relativity which Herbert Spencer so highly praised. This was evidenced in his saying: "If anyone accuses me of being a rascal, my answer is: 'I have no grudge against you for thinking that. If you are right about it and I *am* a rascal, I shall suffer for it—because I *am* a rascal not because you *think* me one. If you are wrong about it, *you* will be the sufferer, because of having judged falsely—and I shall have no part in that retribution.'"

It is hard to leave the subject while so much that might be truly said, to the same purpose, has not yet had expression.

A tribute of cordial affection seems, to him who offers it, to be too slight.

Dr. Mosher was one of the most lovable men that it has been my privilege to know.

RESOLUTIONS ON THE DEATH OF

J. MONTGOMERY MOSHER

ALBANY MEDICAL COLLEGE

The Board of Trustees and the Faculty of the Albany Medical College express their profound sense of loss in the death of Dr. Jesse Montgomery Mosher, for many years teacher of mental diseases in the college. His wisdom and energy made possible the establishment in Albany of the first observation wards in a general hospital in America for patients with mental disturbances, and thus provided facilities for systematic clinical instruction in this branch of medicine. The sound advice given to over a generation of students was particularly fruitful in matters of essential therapy and in the avoidance of arbitrary systems of classification which not infrequently suggest a false prognosis and preclude new knowledge of the individual variations and exceptions so important in mental diseases. Not alone the practice and teaching of his chosen specialty but his encouragement to the younger members of the teaching staff to read and write and to publish their observations and opinions was an important educational influence in this community. We shall sorely miss Dr. Mosher, but his memory will ever be helpful in maintaining the soundest traditions of medical education.

ALUMNI ASSOCIATION OF THE ALBANY
MEDICAL COLLEGE

It is with a profound sense of sadness that we record the death of Dr. J. Montgomery Mosher, one of our alumni, for many years Professor of Mental Diseases at Albany Medical College, and long the Recording Secretary of the Alumni Association.

From the time of his graduation, Doctor Mosher was an ardent worker for the best interests of the College and constantly endeavored to keep the alumni in touch with college activities. His influence was always inspiring, elevating, and endearing. Through his foresight in realizing the need of special provision for mental cases in connection with general hospital work, Pavilion F was established at the Albany Hospital in 1902, one of the pioneer buildings of its kind; and by means of his precept and example, the many students of Albany Medical College who came under his instruction were impressed with the importance to the general practitioner of a knowledge of mental diseases.

WHEREAS, In the death of Doctor Mosher, Albany Medical College has lost a conscientious and devoted member of its faculty; the patients of Pavilion F, a tactful, kindly, and sympathetic physician; and the Alumni Association a loyal supporter and faithful friend; therefore, be it

Resolved, That we, the Alumni Association of Albany Medical College, accept in bowed humility and reverence the will of Almighty God in taking Dr. J. Montgomery Mosher from our midst; and be it further

Resolved, That the Alumni Association has lost a member of inspiring personality and lofty ideals, a physician of unswerving devotion to his profession and its standards; and be it further

Resolved, That the sincere sympathy of this Association be conveyed to the family of Doctor Mosher in a loss so irreparable and immeasurable; and be it further

Resolved, That a copy of these memorial resolutions be spread upon the minutes of the Alumni Association of Albany Medical College.

Thomas H. Willard, Chairman,

Robert B. Lamb

Marcus A. Curry

Committee for the Alumni.

MEDICAL SOCIETY OF THE COUNTY OF ALBANY

Dr. J. Montgomery Mosher's character entitles him to high praise from his colleagues of the Medical Society of the County of Albany. His admirable qualities, however, included such splendid simplicity that it would rather wrong his memory if we should indulge in fulsome superlatives when expressing our affection for, and estimate of, him. His was a superior intellect and his mind was severely trained. His keen ability to distinguish between figures and facts served his associates in varied activities. Several of his compeers in neurology—eminent themselves—have abundantly testified to his distinguished ability in that department of medicine. He held important medical, official positions in several state hospitals—notably those at Willard, Ogdensburg and Utica. For some years before he became an editor of the *American Journal of Insanity*, he wrote quite as many articles and reviews for that periodical as did any member of its editorial staff. One of the great hospitals in Edinburgh, Scotland, was built as Dr. Mosher advised that it should be built, although that required a change in its plans. The same is true of the Albany Hospital. He was called a therapeutic nihilist and it would be easy to show, by illustrative cases, that his estimate of drugs was as apt to promote the welfare of patients as any that obtains. His literary ability was so great as to entitle him to rank among very able writers. His ideas were plentiful and justified. He was editor of the ALBANY MEDICAL ANNALS for many years and his work, in that capacity, was well done. His judgment was highly prized by many men who, themselves, are accounted wise and judicious. An eminent clergyman of our city, who had been urgently invited to come to another, attractive and remunerative field of labor, pondered the matter a long time, then said: "There are but very few persons whose opinion can help me to decide this question, and prominent among them is 'Mont' Mosher." Dr. Mosher *did* help his rector in deciding—and no change of field was made.

Dr. Mosher was a really religious man; he was an efficient officer of his church and—what was quite as important—he placed the highest pre-

mium on *humanity*, which is, in the last analysis, the *essence* of religion—and he *practiced* it.

His spirit was proved by his life to be most exemplary.

We verily mourn our loss by Dr. Mosher's death and we express our sincere sentiments when we say of him that we honor and cherish his memory.

Requiescat in pace.

C. M. CULVER

J. W. WILTSE,

Committee.

ALBANY HOSPITAL

We are met at this hour to put into history our appreciation of the work accomplished in connection with the Albany Hospital by one who gave much original thought, and formulated methods that have resulted in great benefit to a class of patients whom we older men look back upon with sorrow, regarding the manner of treatment given them at a time when their true condition was not properly understood. This subject is uppermost in the minds of many, especially as we are reminded that so much was accomplished by him who died so suddenly, Thursday, Dec. 7, 1922, Dr. J. Montgomery Mosher.

Owing to my embarrassment in hearing I will call upon Dr. Bartlett to preside, to further conduct this meeting, and to hear from the committee appointed who are now ready to report on Dr. Mosher's death.

As members of the medical profession, and citizens of Albany, we are seldom called upon to meet such a shock as came to us on Thursday, Dec. 7, 1922, in the sudden death of Dr. J. Montgomery Mosher.

As an alienist he represented a specialty, of whom there are very few in our profession, and the only one in this portion of the state we can call to mind who occupied his prominence. The study of insanity came to him in an impressive manner, through his association in connection with the State Institution at Ogdensburg and elsewhere, in which he served for a number of years. His charming and delightful association with his father-in-law, Dr. Chapin, of Philadelphia, a man occupying the highest rank in his profession, for many years, gave Dr. Mosher an enthusiastic desire to develop a greater understanding and knowledge in the study of mental diseases. He came to Albany at a time when many changes were being made in the practice of medicine and surgery, especially in the Albany Medical College, and by the Board of Governors of the Albany Hospital. Plans were then under consideration for the betterment of both these institutions, and very valuable suggestions were made by Dr. Mosher regarding the establishment of a department in which he was so thoroughly interested. Sympathizing with him in his views, and realizing how inadequately these cases had been cared for in past years, prompt support was given his efforts. The realization of his desires was soon apparent in the plans for the new buildings of the Albany Hospital, and including those for Pavilion F. The attention of the Governors of the hospital was

called to the necessity of making some provision for the treatment of cases suffering from mental diseases, or, as it was sometimes described, an "emergency ward," where patients might be restrained until such a time as the necessary papers were prepared for sending them to state institutions. It soon developed that a large percentage of these cases recovered, after proper care. Although at first looked upon as cases of mania and melancholia, after at least three or more months of intelligent observation, successful results followed, a fact that was to be observed in the early reports made by Dr. Mosher, and the "emergency ward" developed into a permanent department, one of the first to be established in connection with general hospitals, for the treatment of cases of mental disturbance or known as the department of psychiatry.

Superintendent William H. Storrs, who was then Commissioner of Charities for Albany, rendered great assistance, and when the Board of Supervisors of that day was appealed to they readily and quickly entered into positive assistance by making appropriations that aided in the construction and establishment of Pavilion F.

Better than sixty per cent of recoveries of patients brought there demonstrated the wisdom of Dr. Mosher's early suggestion, and this part of the Albany Hospital is known throughout the United States as an example of permanent improvement in the study of mental diseases, in connection with our general hospital. In the care of this department Dr. Mosher has been a faithful representative. His professional work was sincere and honest and full of a breadth of purpose. He has also had many other responsibilities, and as a citizen has done much for the benefit of his birthplace.

He had much to inspire him, for his parents were earnest people in educational work, his father, as a practitioner of medicine, as a teacher in the Albany Medical College, and in connection with his hospital work, was a man whose example could not but inspire the son, in his chosen activities. His father's brother, Dr. Cornelius Mosher, was one of the best general practitioners in this city, following out most faithfully the care of his large family practice. Another uncle, Dr. Frank G. Mosher, located at Coeymans, for many years continued a large practice, and was a representative member of the profession, not only in his local territory, but was frequently called as a consultant in other portions of that section of New York state.

As President of the Board of Trustees of the Albany Orphan Asylum Dr. Mosher made an excellent record of faithful and consistent service. The same also applies to his trusteeship in the Albany Boys' Academy, the Young Men's Christian Association, as a teacher in the Albany Medical College, in his church work, and in other institutions where he was ever loyal, and never neglected his official duties. In other channels his life work has been very impressive.

We, as his associates in connection with the Albany Hospital, desire to place upon our Minutes a recognition of that which he accomplished in establishing the Psychopathic Department, that has aided so greatly in an extension of the sane reasonable care of these cases.

A feature above many others of his industrial occupations, was the very earnest attention he gave, as chief editor, to the ALBANY MEDICAL ANNALS. For many years Dr. Mosher conducted its publication with such consistent regard for the quality of its material, and with such charm in the writing of his own contributions, as to place it among the most respected and worthy periodicals.

We sorrow with those of his loved ones who mourn his early death, and we would extend to them our earnest sympathy. Dr. Mosher will ever be remembered as one of the foremost citizens of Albany, modest, yet absolutely positive in his well worked out views in relation to the care of a class of cases always requiring a great reserve of patience, sympathy and encouragement on the part of the physician who may be in charge of their treatment.

RESOLVED: That a copy of what we have done today, and placed in our Archives, be sent to Dr. Mosher's grief-stricken family.

A. VANDER VEER

F. C. CURTIS

C. S. MERRILL

ALBANY ACADEMY

The Trustees of the Albany Academy record their deep sense of loss in the death of Dr. J. Montgomery Mosher, for many years a beloved fellow member of the Board, and one of the school's most staunch and devoted supporters.

In the shock of so sudden a bereavement, it is difficult justly to appraise his services, which were noteworthy in many directions, in the care and upkeep of the fine old building, in the development of the athletics and military drill and in the acquisition and preparation of the new Academy field. His admirable taste is evidenced in all the school publications, to which he gave much time and study—not only the Year Book, the plan and arrangement of which are almost entirely his, but in such pamphlets as the Record of the Centennial Celebration.

Though deeply engrossed in his profession, he was most generous of time and thought where either might assist his *alma mater*, most sensitive to anything amiss with her, most concerned about her economical administration, most enthusiastic over the splendid future that is building from her noble past.

ALBANY ORPHAN ASYLUM

Dr. J. Montgomery Mosher, the President of the Board, died on the 7th of December, 1922, bringing to an end a period of wise, devoted and successful service to this institution of more than twenty years. He became a Manager of the Asylum in 1902 at the special insistence of the other members of the Board who had come to recognize the imperative necessity of the advice and collaboration of a physician experienced in the management of charitable institutions.

Dr. Mosher possessed the essential qualifications to a very unusual degree, and largely as a result of his special knowledge and training and of his peculiar fitness for the work, as well as of his unsparing devotion of time and effort, the Asylum, since his accession to the Board, has been entirely transformed, spiritually as well as materially, and given a place among the foremost institutions of its kind.

On the death in 1917 of Mr. John K. Howe, the preceding president, Dr. Mosher was prevailed upon to accept, reluctantly, the vacant office. His administration has only emphasized his unusual aptitude for such a task. Sound and far-sighted in his aims, gentle but persevering in his methods, simple and unassuming in manner and address, successful in procuring co-operation because always ready to do most of the work himself, he conducted this charity safely through the most threatening days of its long history and had at least the relief and satisfaction of seeing it survive and enter what promises to be a more propitious period. In his untimely death, the Board, the Institution and the whole community have suffered a grievous and irreparable loss.

FREDERICK TOWNSEND

GARRIT Y. LANSING

JOHN T. PERRY

WM. SAYLES

NATHAN HATCH

CHAS. S. STEDMAN

JOHN A. BECKER

ABRAM R. BRUBACHER

ROBERT OLCOTT

S. L. MUNSON, JR.

ST. PAUL'S CHURCH

St. Paul's church records this minute of appreciation of Dr. J. Montgomery Mosher, a vestryman in this church from November 19, 1906, until his death on December 7, 1922. Not only as a general practitioner, but particularly as a specialist in neurology, he had achieved distinction. Yet amid the many exactions of his professional life, he gave, without stint, of his time, effort and thought in furthering the interests of various humanitarian institutions in this community. Energetic in his activities, of unassuming demeanor, conscientious to the full performance of whatever it rested upon him to do, his talents, of a conspicuously high order, were devoted to the service of his fellow men. In ministering to the sick and the needy, he wrought faithfully to carry forward the Kingdom of God on earth. St. Paul's is numbered among those to whom the passing of Dr. Mosher brings deep bereavement.

BIBLIOGRAPHY OF

DR. JESSE MONTGOMERY MOSHER

ASSOCIATE EDITOR Vol. 18, 1897—

Vol. 23, 1902.

EDITOR Vol. 24, 1903—Vol. 43, 1922.

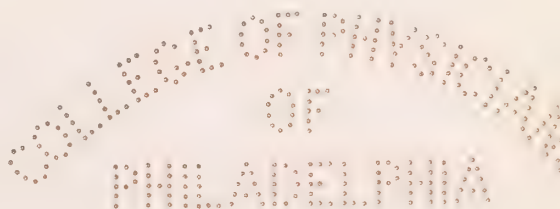
THE ALBANY MEDICAL ANNALS

Prepared by Henry Hun and Frances K. Ray

- 1889 Case of cerebral thrombosis with conjugate deviation of the head and eyes. Read before the Willard med. assoc. Oct. 4, 1889. *Amer. jour. insanity.* 1890, 46:370
- 1891 Recovery from melancholia following pleurisy. Read before Assoc. of med. superintendents of Amer. institutions for the insane, May, 1891. *Amer. jour. insanity.* 1891, 48:253
- 1892 Two cases of brain tumor. Read before the St. Lawrence co. med. soc. May 17, 1892. *Amer. jour. insanity.* 1892, 49:307
- 1893 Mental epilepsy. Med. soc. of the State of N. Y. Trans. 1893:169. *Also in: Jour. nerv. and ment. dis.* 1893, 20:398
- 1895 Analysis of 156 admissions to the St. Lawrence state hospital, with especial reference to acute insanity. *Med. rec.* 1895, 48:829. *Also in: State hosp. bull.* 1896, 1:10
- Relations of mental and physical disease. *Med. rec.* 1895, 47:390.
- 1897 Historical sketch of the Albany medical college (illus.) *Amer. univ. mag.* 1897, 6:39
- 1898 Biographical sketch of Benjamin F. Sherman, M.D. Med. soc. State of N. Y. Trans. 1898; 407
- Cerebral amblyopia. *Albany med. annals.* 1898, 19:164
- 1900 Influenza and the nervous system. *Med. news.* 1900, 77:924
- The insane in general hospitals. *Amer. medico-psych. assoc. Proc.* 56th annual meeting. 1900, 7:142. *Also in: Albany med. annals.* 1900, 21:669; *and Amer. jour. insanity.* 1900, 57:325

- 1901 Hyperplasia of the pituitary body with eburnation of the skull; clinical notes by J. M. Mosher; pathological notes by George Blumer. Albany med. annals. 1901, 22:146
- A letter from Esquirol and a prescription from Rush. Amer. jour. of insanity. 1901, 58:189
- A record of 294 vaccinations of children at the Albany orphan asylum. Albany med. annals. 1901, 22:553
- 1902 Pavilion F. [being the 2d in] A series of papers presented before the American surgical association on their visit to the Albany hospital, June 4, 1902. Amer. surg. assoc. Trans. 1902, 20:138. *Also in:* Albany med. annals. 1902, 23:383
- 1903 Electro-diagnosis. St. Louis. Matthews. n. d.
- Scheme for the differential testing of nerves and muscles, for use in diagnosis. Albany. Brandow. 1903
- 1904 The genesis of insanity; vice-president's address to the Med. soc. of the co. of Albany at the semi-annual meeting held in the State medical library, Oct. 11, 1904. Albany med. annals. 1904, 25:745
- Mental wards in general hospitals. Presented at 6th annual conference of Assoc. of hospital superintendents at Atlantic City, Sept. 22, 1904. 8 p. 1904. *Also in:* N. Y. med. jour. 1905, 81:1065 and Nat'l hosp. rec. 1905, 9, no. 1:18
- 1905 Specialties in medicine. Address before Ogdensburg med. assoc. Sept. 5, 1905. Albany med. annals. 1905, 26:667
- 1906 Herophilus the Chalcedonian. Albany med. annals. 1906, 27:38
- 1907 An address delivered Oct. 25, 1907, to the Albany guild for the care of the sick, on the occasion of conferring certificates upon assistant nurses who have finished their training with the Guild. Albany med. annals. 1908, 29:180
- Pavilion F, a department for mental diseases of the Albany hospital. Address before the National conference of charities and correction, July 18, 1907. Nat'l conf. char. and corr. Proc. 1907, 34:422

- 1908 A consideration of the need of better provision for the treatment of mental disease in its early stage. Read before the Med. soc. of the State of Pennsylvania, Sept. 1908. *Amer. jour. insanity* 1908-09, 65:499. *Also in: Penn. med. jour.* 1908-09, 12:289
- Old age. Read before Medical societies of the County of Montgomery and City of Amsterdam. Mar. 11, 1908. *Yale med. jour.* 1908-09, 15:49
- 1909 Douglas Argyll Robertson. *Albany med. annals.* 1909, 30:464
- The need of visiting and certified nurses. Read before Instructive district nursing assoc. of Troy March 1, 1909. *Albany med. annals.* 1909, 30:736
- Problem of the acute mental case. Read before Med. assoc. of North Berkshire, North Adams, Mass. Dec. 14, 1909. *Albany med. annals.* 1910, 31:638
- Puerperal insanity. Read before the Med. soc. of co. of Albany. Nov. 24, 1909. *Albany med. annals.* 1910, 31:84
- 1911 Electrotherapy. In Musser and Kelly. *Handbook of practical treatment.* 1911, 1:600
- Syllabus of a course of clinical lectures on mental affections, designed as a notebook for the use of students. Albany. Brantford. 1911
- The training of nurses in mental affections. Read before N. Y. state nurses' assoc. at 10th annual meeting, 1911. *N. Y. state nurses' assoc. proc.* 1911; 149
- Treatment of mental disease in the early stage; prepared at the request of the secretary of the section of psychological medicine and neurology, and presented at the 9th session of the Australasian medical congress, Sydney, Sept. 1911. *Australasian med. congress. Trans.* 9th sess. 1911:805. *Also in: Australasian med. gaz.* 1912, 31:153
- 1914 Psychosis of adolescence. Read before Amer. neurological assoc. 1914. *Albany med. annals.* 1914, 35:303. *Abstr. in: Jour. nerv. and ment. dis.* 1915, 42:38
- 1916 "A lady with a lamp." Address to graduating nurses of Frederic Ferris Thompson hosp., Canandaigua, June 2, 1916. *Albany med. annals.* 1916, 37:543



- 1917 The mental nurse. Address to the graduating nurses of Butler hosp. Providence, R. I., June 5, 1917. Albany med. annals. 1917, 38:461
- 1919 A case of traumatic epilepsy from the mental and surgical services of the Albany hospital. Albany med. annals. 1919, 40:65
- The defective, the surgeon and the law. Amer. jour. of insanity. 1919, 75:558
- 1921 Mania transitoria and epileptiform migraine. Contribution to the dedication of the George Alder Blumer research lab. of the Utica state hospital, June 4, 1921. State hosp. quarterly. 1921, 6:481. *Also in:* Albany med. annals. 1921. 42:255

Albany Hospital: reports of Pavilion F, Department for mental diseases.

1st report,	Albany med. annals	1903,	24:211
2d	"	"	"
3d	"	"	"
4th	"	"	"
5th	"	"	"
6th	"	"	"
7th	"	"	"
8th	"	"	"
9th	"	"	"
10th	"	"	"
11th	"	"	"
12th	"	"	"
13th	"	"	"
14th	"	"	"
15th	"	"	"
16th	"	"	"
17th	"	"	"
18th	"	"	"
19th	"	"	"

1904, 25:405
1905, 26:240
1906, 27:332
1907, 28:895
1908, 29:873
1909, 30:796
1910, 31:590
1911, 32:652
1912, 33:651
1913, 34:656
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1917, 38:517
1918, 39:401
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1920, 41:371
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Ἐκ σκότου μὲν ἔξαγε φῶς, ἐκ
δὲ πάθους ἀναψυχὴν.

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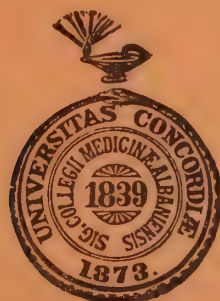
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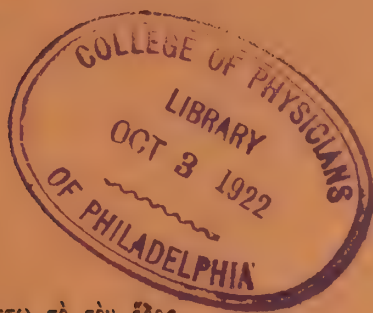
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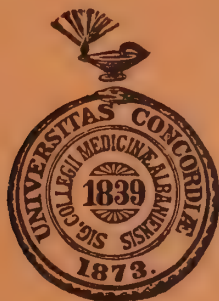
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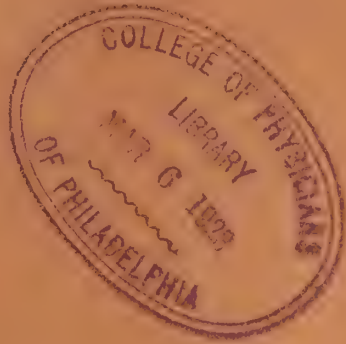
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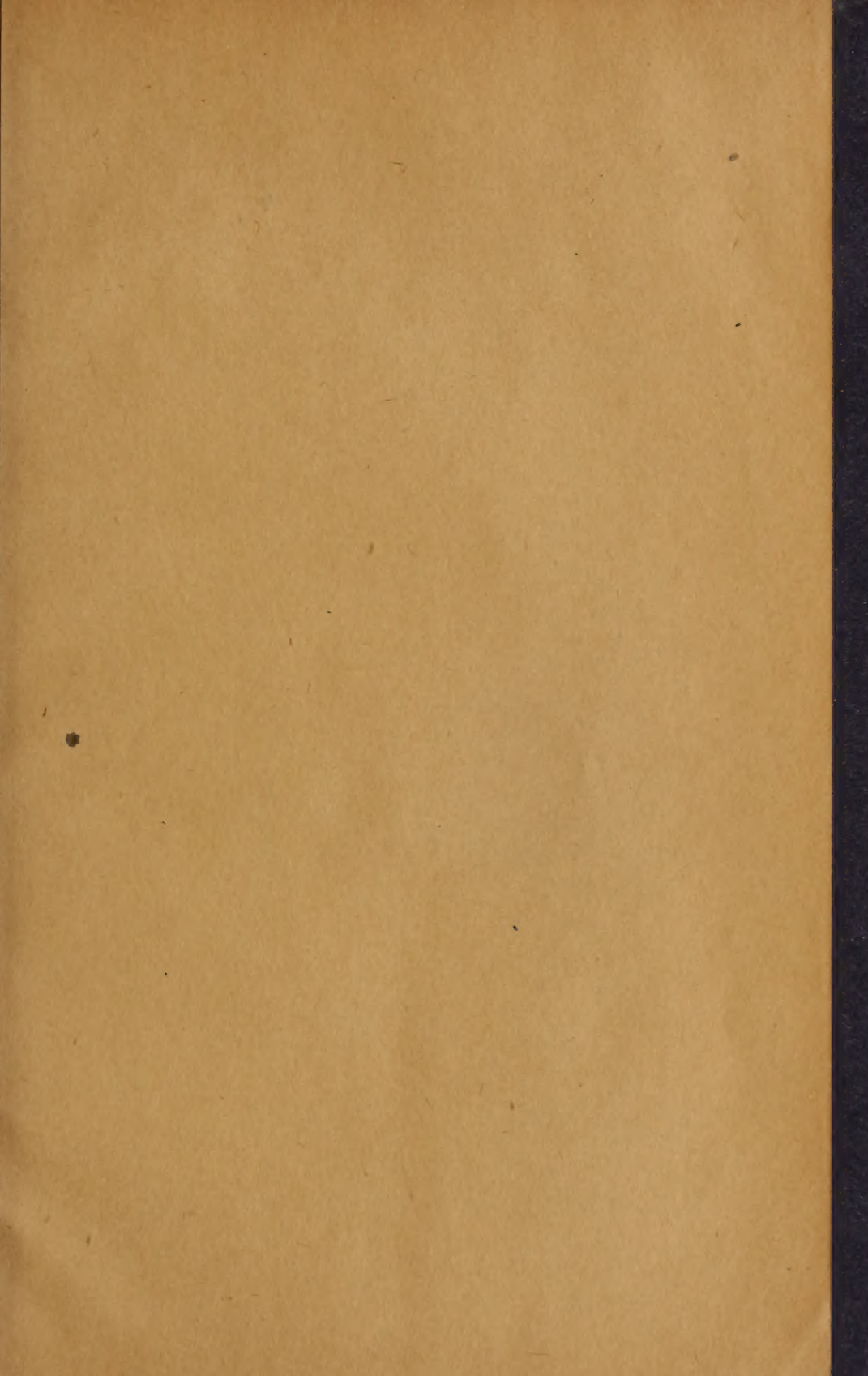
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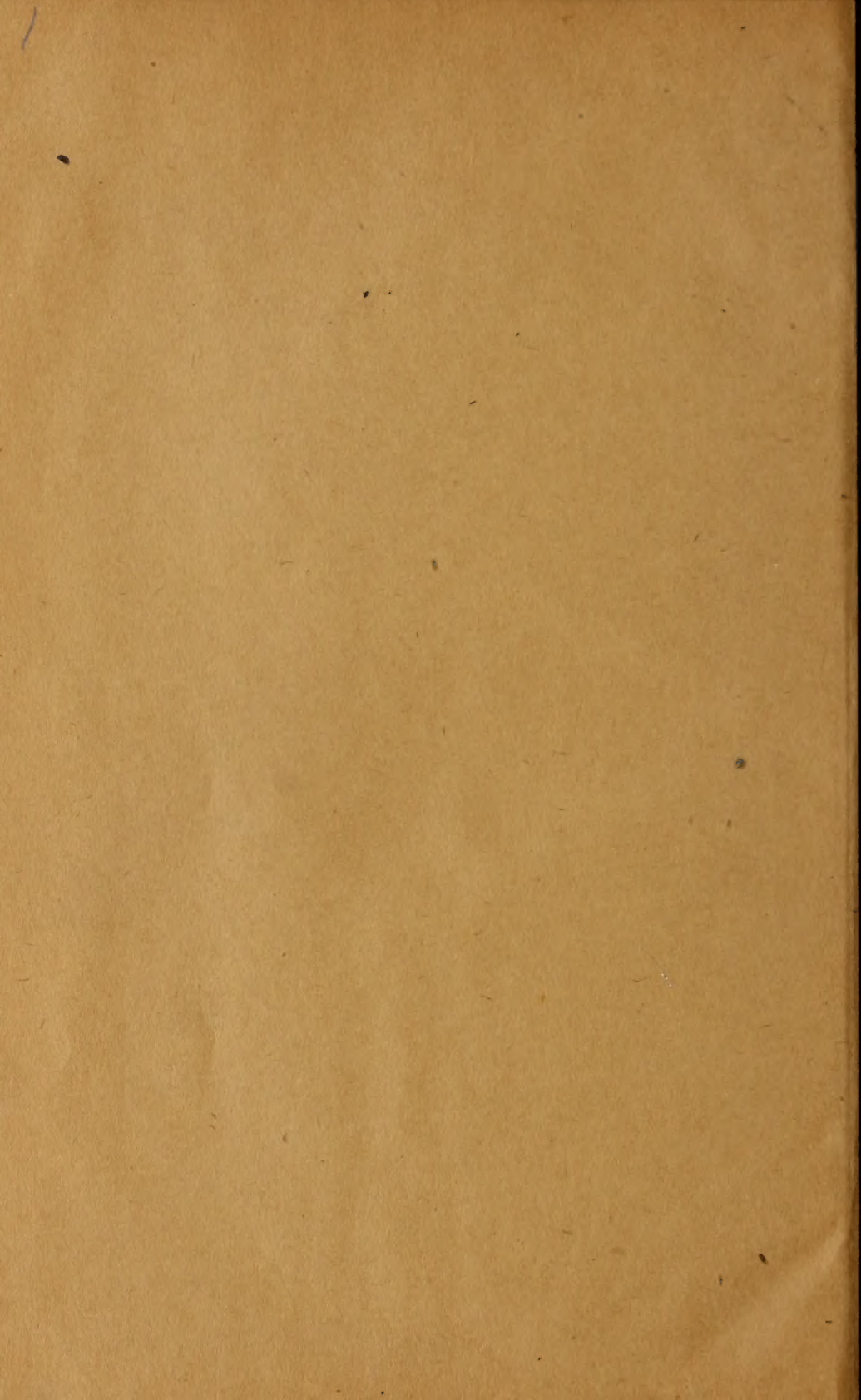


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